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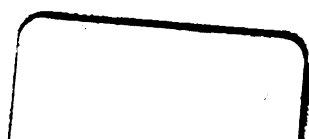
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AMERICAN

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HENRY BARNARD, LL. D.

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PREFATORY NOTE.

WITH this Number (for January, 1871), we resume the regular publication of the *American Journal of Education*, which has been somewhat intermitted, although not positively suspended, during our connection with the Department and Office of Education. We hope to receive sufficient encouragement to enable us to continue our articles, original and selected, on the existing condition and movements of Education in different countries, until we have given something like completeness to our survey of the past history and present condition of:—

I. National Education in different countries in respect to:

1. Elementary Schools—Infant and Juvenile.
2. Secondary Schools—Public High Schools—Gymnasiums, &c.
3. Superior Schools—Universities—Colleges, &c.
4. Special and Class Instruction, viz.: (1) Theology; (2) Law; (3) Medicine and Surgery; (4) Teaching; (5) Agriculture, and Rural Economy generally; (6) Architecture and Construction of all kinds; (7) Chemical Technology; (8) Commerce and Trade generally; (9) Engineering, Civil, Mechanical and Marine; (10) Drawing, in its Ideal and Industrial applications; (11) Metallurgy and Mining; (12) Mechanics and Machinery; (13) Music—both Vocal and Instrumental; (14) Navigation—by steam and sail, on river and ocean; (15) Military and Naval Schools; (16) Public Service, the administration of Telegraphs, &c.; (17) Female Education—both general and special; (18) Exceptional Classes, such as Orphans, Deaf Mutes, Blind, &c.
5. Supplementary Schools and Agencies: (1) Evening Schools and Classes; (2) Libraries; (3) Lectures.
6. Societies for the Advancement of Art, Education, Literature and Science.
7. Architecture for Schools of every grade, and for all Educational purposes.
8. School Codes of different countries in reference to a discussion of the organization and administration of School Systems.
9. The Pedagogy of different Nations: (1) Germans; (2) Swiss; (3) French; (4) English; (5) American.
10. Educational Biography: (1) Teachers; (2) Promoters and Benefactors of Education.

II. The past history and present condition of Education as a Science and as an Art.

HENRY BARNARD.

HARTFORD, CONN., Jan. 15, 1871.



THE American Journal of Education.

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INSTRUCTION IN SCIENCE AND ART.

INTRODUCTION.

A prominent defect, second only to the absence of all provision for the professional training of teachers, in our systems and institutions of public instruction in 1836, as compared with those of France, Switzerland, and the leading German States, as they were found after personal inquiry and observation, was the absence of special schools and classes for teaching drawing, geometry, physics, mechanics, chemistry, and the natural sciences generally, with special reference to the great national industries,—to commerce, locomotion, machinery, manufactures, mining, engineering and civil constructions of all kinds. The demand for engineers, and practical chemists and geologists, was very inadequately met by the Rensselaer School at Troy, by graduates (resigned, or detached from the public service) of the Military School at West Point, and by ingenious men, who educated themselves in practice (involving much cost and many failures), and from books, for their work.

Public attention in Connecticut was called to this omission in an address prepared in 1837, after my return from Europe, and delivered in 1838, and subsequently in connection with other topics of educational reform, in different parts of the country. Information in detail, on institutions referred to in this address, viz: the Polytechnic School of France, with the Special Schools of Applications in machinery, engineering and mines; the Conservatory of Arts and Manufactures, with its museums of machines and implements, and popular but systematic lectures; the Agricultural Course and industrial teaching of Fellenberg at Hofwyl; the Agricultural Institute in Wurtemberg; the Mining School in Saxony; the commercial and technical classes in the Institute at Vienna; the architectural lectures of the School of Arts in Berlin, and various incipient steps in the same direction in the Mechanic Institutes of England,—in a document first issued in 1839, and made part of my Annual Report as Secretary of the Board of Commissioners of Common Schools for Connecticut for 1839-40; re-issued with additions in 1847, as Commissioner of Public Schools in Rhode Island, and again in 1853-54 in the volume entitled *National Education in Europe* in the series of educational treatises issued as Superintendent of Common Schools in Connecticut.

In 1852, Samuel Colt of Hartford, the inventor and manufacturer of the Colt Revolving Fire-arm, contemplated the early establishment of

INSTRUCTION IN SCIENCE AND ART.

Evening Classes of elementary instruction for young persons in his employment whose school education had been neglected, and of instruction in drawing, chemistry and mechanics for such of his adult workmen as chose to avail themselves of it. In 1854, his plan was expanded into a regularly organized School of Mechanics and Engineering. As the resources from which he intended to endow it accumulated, he included courses of practical agriculture, horticulture and landscape gardening; and finally, on the breaking out of the war, he signified his purpose to alternate the practical work of the shop and the field with military drill. The institution thus projected and expanded was a comprehensive Polytechnic School—which would at once supply through its evening classes the deficient elementary schooling of his own workmen, meet the wants of technical instruction in any occupation in the community in which he lived, and offer a thorough scientific basis for the practical training of the agriculturist, the architect, the engineer, the machinist, the designer, the manufacturer, the miner and metallurgist, as well as of the candidate for any other of the leading industries of the country.

In the inception and development of his plan, he was pleased to consult me; and in 1854 signified his desire to name me in the instrument by which he should create and endow the trust, with a request that I would obtain full and reliable accounts of all establishments at home or abroad, which had any feature in common with the school which he contemplated, and which it was his purpose to endow by will beyond any literary institution in New England; and to be prepared to report a plan, when called on.

In pursuance of this request, and of studies already widely extended in the field of scientific and technical instruction, a large portion of the material for the chapters and special sections which compose this volume, were collected, and to some extent prepared for publication and printed in the American Journal of Education, at the time of Col. Colt's death in 1862, when it was found that his original purpose to endow by will such an institution had been revoked by a later codicil.

In 1863, at the request of Mrs. Colt, the work of collection and preparation was resumed, and a portion relating to Military Schools and Education was published in advance of the completion of the Report, which was intended to be a complete survey of Institutions for Special Instruction in the Sciences and Arts in different countries, to aid in the development of a Plan for a Polytechnic School, in the city of Hartford, Conn. Her object was simply to enable me to complete my survey of the whole field of Special Instruction; and was abandoned by her on the partial destruction of the Armory Buildings by fire in 1865. Since that date the work has been prosecuted to its present state of completion as rapidly as was consistent with other engagements.

HENRY BARNARD

SCIENTIFIC AND INDUSTRIAL EDUCATION: an Account of Systems, Institutions, and Courses of Instruction in the Principles of Science applied to the Arts of Peace and War in different Countries.

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GREAT BRITAIN.

INTRODUCTION.

THE BRITISH EMPIRE consists of the British Islands (generally designated Great Britain, and Ireland); Indian Possessions; Australia and New Zealand; Dominion of Canada, and other large possessions in North America, and the West Indies; and various colonies and settlements which dot the whole surface of the civilized world with forts and government houses, over which floats the meteor flag of England.

The following table exhibits the extent, population, finances, and commerce of the different portions of this great Power:—

Name of Country.	Area. Sq. miles.	Population.	Revenue.	Public Debt.	Imports and Exports.
Great Britain and Ireland.....	130,769	30,873,682	£70,500,450	£749,135,911	£532,475,266
Indian Possessions.....	910,533	135,348,000	48,534,412	101,808,111	98,655,879
Indian Protected States.....		48,150,000			
Other Eastern Possessions.....	26,474	3,190,297	2,094,164	1,700,000	27,900,602
Australasia.....	2,582,070	2,001,055	11,784,039	31,315,509	64,822,467
North America.....	632,418	4,114,159	3,805,108	15,808,361	29,673,230
West Indies.....	12,683	945,197	954,544	1,066,172	9,105,051
European Possessions.....	190	155,063	199,800	216,662	5,583,639
Various Settlements.....	319,915	632,190	1,305,814	2,051,333	8,228,330
Total.....	4,065,202	245,530,733	£120,168,337	£903,280,039	£770,504,464

The British Isles consist of Great Britain (England, Scotland and Wales), and Ireland, with a population in 1869 of 30,873,682.

England is divided from Scotland on the north by the Cheviot Hills and the rivers Tyne and Solway, and from Wales by the Severn and the Dee. The western part of England was known to the Phœnicians, and was resorted to by them for its tin, four centuries, or so, before Christ; and hence the whole country was known by the name of Cassiterides or Tin Islanda. When invaded by Cæsar (B. C. 55) it was called Britain, or some time Albion. The Romans subdued all England, and parts of Scotland and Wales, but did not reach Ireland, although its existence was known to them. In the third century, when the power of Rome was on the decline, an officer called the Count of the Saxon Shore was appointed to withstand encroachments from the opposite coasts; about the year A. D. 410, the Britons revolted, and the Romans abandoned the island, after a rule of 450 years. The Britons, being divided into as many hostile States as they had cities, were unable to resist the fresh hordes (now called Saxons and Angles) that poured into the island, and

about 457 the kingdom of Kent was founded. The Britons still fought stubbornly, but were gradually driven westward, and by the year 584 the kingdom of Mercia (meaning the march land or frontier State) was established, being the last of the seven kingdoms founded by the invaders, whence the whole is usually styled the Heptarchy. The kings of the Heptarchy made war on each other, but at last in 827 Egbert of Wessex obtained the supremacy of the whole, and styled himself King of England. His descendants, of whom Alfred the Great was the most illustrious, held the throne for more than 200 years, but the country suffered greatly during the time from the ravages of the Danes, who, under Canute and his sons, became its rulers for twenty-five years (1017-1042). The Saxon line was restored in the person of Edward the Confessor, to whom Harold succeeded; but his death in the battle of Hastings, on the 14th of October, 1066, gave England into the hands of the Norman kings, who reigned from 1066 to 1154. Then came the Plantagenets (1154-1485); the Tudors (1485-1603); and the Stuarts (1603-1714), to whom the House of Brunswick succeeded on the death of Queen Anne. Her present Majesty is the sixth sovereign of that line.

The conquest of Ireland was begun in the year 1170, but can hardly be regarded as completed until the surrender of Limerick in 1691. Wales was conquered by Edward I. in 1282, and formally annexed to England by Henry VIII. in 1536. Scotland successfully resisted the efforts of Edward I. to subjugate it, maintained for ages a close alliance with France, and in 1603, gave a ruler to England in the person of James VI., who became James I. of Great Britain, a title then first assumed. This was but a personal union, but the union of the kingdoms was effected under Queen Anne in 1707. Ireland, which had been hitherto only styled a lordship, was declared a kingdom in 1542, and this kingdom was united to that of Great Britain by the Act of Union, on January 1, 1801.

The form of government is a limited monarchy, consisting of the Sovereign and the Houses of Lords and Commons, without whose joint approval no legislation is complete, though a large discretion is left to the executive, and for the proper exercise of this discretion the Ministers of the crown are responsible, as it is a legal maxim, that "the Sovereign can do no wrong." For administrative purposes, England is divided into forty counties, Wales into twelve, Scotland thirty-three, and Ireland thirty-two. To each of these counties there is, with some few exceptions, a lord-lieutenant and a sheriff, and a number of justices of the peace, beside stipendiary magistrates in London and other large cities.

The policy of the English Government, down to a very recent period, has been to leave the promotion of Science and Art, even in their obvious connections with national industries—the mining, commercial, manufacturing, and mechanical productions of the people,—to individual and associated effort. Within the last half century, and more rapidly and thoroughly within the last twenty years, this policy has undergone great changes, until there is not a government in the world which appropriates such large sums annually for the advancement of Education, Science, and Art. We give a list of annual appropriations from the public treasury for these purposes, mostly for 1869.

I. ELEMENTARY EDUCATION.

1. England and Scotland—through Committee of Council.—

(1.) Central Office and Administration,.....	£22,531
(2.) Inspection (68 Inspectors)—Salaries and Travel,.....	64,103
(3.) Training Colleges* (38) for Elementary Teachers,.....	74,250
(4.) Sums paid toward Teachers' Salaries— <i>Scotland</i> ,.....	79,500
" " " " " <i>England and Wales</i> ,.....	549,639
(5.) Building grants, apparatus, &c.,†.....	45,500
Total for England and Scotland,.....	£835,523

2. National Schools, Ireland:—

(1.) Central Office,.....	17,412
(2.) Inspection—Salaries and Travel,.....	35,461
(3.) Normal Establishments,.....	8,245
(4.) Agricultural Schools,.....	5,828
(5.) Books and apparatus,.....	26,952
(7.) Teachers' Salaries,.....	360,194
Total through National Board for Ireland,.....	£454,092
Total for Elementary Instruction in Great Britain,.....	£1,289,615

II. HIGHER EDUCATION.

The principal expenditures for Institutions of Secondary Education in Great Britain, Scotland, and Ireland, are met by endowments (the annual income of which is about £1,000,000) and parental payments.

The 8 great Universities of England, Scotland, and Ireland, have endowments to the annual value of over £700,000.

To aid Universities and Colleges of Superior Instruction, Parliament made grants in 1869 as follows:—

1. Oxford and Cambridge,.....	£10,000
University of London,.....	9,063
2. Universities of Scotland,.....	15,192
3. Queen's Colleges (Belfast, Cork, Galway), Ireland,....	11,520
Belfast Seminary,.....	2,050
Maynooth—St. Patrick's College,.....	26,000
Queen's University, Ireland,.....	3,155
4. University Buildings (Glasgow, London),.....	100,000
Total,.....	£176,980

III. SCIENCE AND ART DEPARTMENT.

1. Central Administration,.....	£8,507
2. Schools of Science and Art—Central and Provincial,....	70,860
3. South Kensington Museums—Collections, &c.,.....	90,740
4. National Portrait Exhibition (1868-9),.....	3,000
5. East of London Museum,.....	10,000
6. Schools of Mines and Chemistry, and Geological Museum,.	12,253
7. Edinburgh Museum of Industrial Art,.....	8,219
8. Royal College of Science for Ireland,.....	6,236
Royal Dublin Society,.....	2,185
Botanic Garden at Glasnevin,.....	1,950
Museum of Natural History and Library,.....	2,785
Royal Hibernian Academy,.....	300
Total for Science and Art Department,.....	£217,035

IV. LEARNED SOCIETIES AND SCIENTIFIC PURPOSES.

1. Royal Society, London,.....	£1,000
For Meteorological Observations,.....	10,000
Royal Geographical Society,.....	500
Royal Geological Society,.....	1,500
Royal Academy of Music,.....	500
Royal Irish Academy,.....	1,784
Edinburgh Observatory,.....	890
Edinburgh Royal Society,.....	1,520
Geological Survey of the United Kingdom,.....	19,778
Hydrographic Department of the Navy,.....	66,000
Greenwich Observatory,.....	4,414
Buildings (Museums of Natural History, &c.),.....	200,000
<i>Total</i> ,.....	£307,886

V. MUSEUMS AND GALLERIES OF ART.

1. British Museum, London,.....	£99,380
2. National Gallery,.....	15,992
3. Historical Portrait Gallery,.....	1,800
4. National Gallery of Ireland,.....	2,740
Royal Institution, and Board of Manufactures, Edinburgh,...	4,500
5. Art Ornamentation of Parliament Houses,.....	10,000
6. Annuities, &c., on former Donations and Bequests,.....	5,000
<i>Total</i> ,.....	£139,422

VI. MILITARY AND NAVAL SCHOOLS AND EDUCATION—1868-9.

1. Military Schools, &c.—	
Council of Military Education,.....	£8,207
Royal Military Academy—Woolwich,.....	38,581
Royal Military College—Sandhurst,.....	36,781
Staff College at Sandhurst,.....	7,955
Regimental and Guard Schools,.....	39,015
Royal Military Asylum and Normal School,.....	14,917
Royal Hibernian Military School,.....	11,378
Department of Instruction for Military Officers,.....	2,945
Military Medical School,.....	9,600
2. Naval Schools and Nautical Purposes.—	
Royal Naval College at Portsmouth,.....	£3,561
School of Naval Architecture,.....	4,000
Director of Naval Studies,.....	1,000
Seamen's, Dockyard, and Harbor Schools,.....	3,000
Navigation Schools (exclusive of Science Department aid),.....	2,000
Greenwich Hospital Schools (Funds),.....	20,000
<i>Total</i> ,.....	£202,890

VII. JUVENILE CRIMINALS AND REFORMATORIES.

For England and Wales,.....	£123,000
“ Ireland,.....	48,960

These objects, numerous and important as they are, do not exhaust the list of Parliamentary appropriations for Education, Science and Art in 1869, but the sums, large in single instances, exceed in the aggregate (£2,500,000) those made by any other government for the same period. It only needs a more systematic administration of the public grants, to stimulate and direct wisely local, institutional, and individual activity, and supplement their deficiencies by doing well what individuals, associations, or local communities can not do thoroughly, if at all—to bring the Special as well as the General Instruction of the whole country on to a higher plane than they now occupy in any other State.

SPECIAL INSTRUCTION IN GREAT BRITAIN.

I. INDIVIDUAL PROMOTERS OF REALISTIC INSTRUCTION.

Under the Church system of education, which supplanted the barbarism of an earlier period, and which prevailed throughout England, Scotland, and Ireland, as well as in Europe generally, all institutions, endowments and methods were designed to foster instruction in language, and those speculative studies which were found particularly useful in ecclesiastical affairs. But English literature is not without occasional witnesses to the defective arrangements then existing, and appeals and suggestions for other institutions and instruction.

SIR THOMAS ELYOT.

SIR THOMAS ELYOT, in "*The Governor*,"* first published in 1544, which was designed to instruct men, and especially men of noble birth, in good morals, and in the ways of usefulness, recommends that young gentlemen be brought up "to draw, paint, and carve," and put to frequent practice "with poises made of lead," lifting or throwing the heavy stone or bar, in wrestling, running, swimming, riding, dancing, and shooting with the long bow. In addition to these recreations, he praises the industry of the king of Prussia, "who in a time vacant from the affairs of his realm, planted innumerable trees, which long before he died brought forth abundance of fruit."

FRANCIS LORD BACON.

Francis Bacon (born in 1561 and died in 1626) was the earliest and ablest champion of a broad educational policy, both in opening up the whole field of science for better culture, and in founding new places of learning, and holding out stronger inducements for ingenious minds to devote themselves to natural science. In the preface to the Second Book on the Dignity and Advancement of Learning, addressed to the king, and written in 1605, he thus speaks of the deficiencies in the provisions for higher culture in his day, and the necessity of new schools dedicated to the study of the Arts and Sciences at large, as well as professorships, laboratories, and other facilities of experiment and practice.

First, therefore, among so many noble foundations of colleges in Europe, I find it strange that they are all dedicated to professions, and none left free to the study of arts and sciences at large. For if men judge that learning should be referred to use and action, they judge well; but it is easy in this to fall into the error pointed at in the ancient fable; in which the other parts of the body found fault with the stomach, because it neither performed the office of motion as the limbs do, nor of sense, as the head does; but yet, notwithstanding, it is the stomach which digests and distributes the aliment to all the rest. So if any man think that Philosophy and Universality are idle and unprofitable studies, he does not consider that all arts and professions are from thence supplied with sap and strength. And this I take to be a great cause, which has so long hindered the more flourishing progress of learning; because these fundamental knowledges have been studied but in passage, and not drunk deeper

* For copious extracts, see *Barnard's American Journal of Education*, vol. xvi. 483-496.

of. For if you will have a tree bear more fruit than it has used to do, it is not any thing you can do to the boughs, but it is the stirring of the earth, and putting richer mould about the roots, that must work it. Neither is it to be forgotten that this dedication of colleges and societies to the use only of professed learning has not only been inimical to the growth of the sciences, but has also been prejudicial to states and governments. For hence it proceeds that princes when they have to choose men for business of state, find a wonderful dearth of able men around them; because there is no collegiate education designed for these purposes, where men naturally so disposed and affected might (besides other arts) give themselves especially to histories, modern languages, books of policy and civil discourse; whereby they might come better prepared and instructed to offices of state.

And because founders of Colleges do plant, and founders of Lectures do water, I must next speak of the deficiencies which I find in public lectures; wherein I especially disapprove of the smallness of the salary assigned to lecturers in arts and professions, particularly amongst ourselves. For it is very necessary to the progression of sciences that lecturers in every sort be of the most able and sufficient men; as those who are ordained not for transitory use, but for keeping up the race and succession of knowledge from age to age. This can not be, except their condition and endowment be such that the most eminent professors may be well contented and willing to spend their whole life in that function and attendance, without caring for practice. And therefore if you will have sciences flourish, you must observe David's military law; which was, "That those who stayed with the baggage should have equal part with those who were in the action;" else will the baggage be ill attended. So lecturers in sciences are as it were the keepers and guardians of the whole store and provision of learning, whence the active and militant part of the sciences is furnished; and therefore they ought to have equal entertainment and profit with the men of active life.

Certain it is that for depth of speculation no less than for fruit of operation in some sciences (especially natural philosophy and physic) other helps are required besides books. Wherein also the beneficence of men has not been altogether wanting; for we see spheres, globes, astrolabes, maps, and the like, have been provided and prepared as assistants to astronomy and cosmography, as well as books. We see likewise that some places instituted for physic have gardens for the examination and knowledge of simples of all sorts, and are not without the use of dead bodies for anatomical observations. But these respect but a few things. In general, it may be held for certain that there will hardly be any great progress in the unraveling and unlocking of the secrets of nature, except there be a full allowance for expenses about experiments; whether they be experiments appertaining to Vulcan or Dædalus (that is, the furnace or engine), or any other kind. And therefore as secretaries and emissaries of princes are allowed to bring in bills of expenses for their diligence in exploring and unraveling plots and civil secrets, so the searchers and spies of nature must have their expenses paid, or else you will never be well informed of a great number of things most worthy to be known. For if Alexander made such a liberal assignation of money to Aristotle, to support hunters, fowlers, fishers and the like, that he might be better furnished for compiling a History of Animals; certainly much more do they deserve it, who, instead of wandering in the forests of nature, make their way through the labyrinths of arts.

Bacon also advises an examination of the studies in existing Universities and Schools, in reference to leaving out some that are obsolete, and introducing others which are fresh and useful, and a reorganization generally to adapt the studies better to the natural order of development of the human faculties, and the future uses of life. He also suggests that the different Universities, or schools of learning, should be brought "into a noble and generous brotherhood;" that a more careful and accurate survey of the sciences actually cultivated "as well as of those not yet converted to use by the industry of man," should be made, and that better text-books and better methods of instruction generally should be introduced. In the Sixth Book, "*De Augmentis Scien-*

tiarum," he gives the preference to the *genetic method*, where the teacher "transplants knowledge into the scholar's mind, as it grew in his own." "Methods should vary according to the subject to be taught, for in knowledge itself there is great diversity." "A judicious blending and interchange between the easier and more difficult branches of learning, adapted to the individual capabilities, and to the future occupation of pupils, will profit both the mental and bodily powers and make instruction acceptable. Go to nature and listen to her many voices, consider her ways and learn her doings; so shall you bend her to your will. For knowledge is Power"—is the substance of Bacon's Pedagogy.*

JOHN MILTON.

JOHN MILTON held and proclaimed views of educational reform more comprehensive and more radical even than those of Lord Bacon. In his *Tractate on Education*, addressed to Samuel Hartlib in 1644, he presented the outline of a system "designed to teach science with language, or rather to make the study of languages subservient to the acquisition of scientific knowledge," supplemented and utilized by the widest survey of practical operations in the field and workshop. The plan is liable to objection from the multiplicity of subjects embraced in its scope, and from the necessity in his day of resorting to textbooks, which very inadequately presented the principles of science and the processes of the arts; but the leading suggestions have been, within the last half-century, realized in the Polytechnic Schools of Germany, and are now partially embraced in the organization of the special schools of France.

Passing beyond the elementary projects of Ratich and Comenius, which he alludes to under the designation of "many modern *Januas* and *Didactics*," he accepts the study of language "as the instrument conveying to us things useful to be known," and especially "the languages of those people who have been most industrious after wisdom," but asserts that by better methods, a truly valuable knowledge of the Greek and Latin tongues and literatures can be "easily and delightfully" made in one-seventh of the time usually bestowed on their acquisition—which with most amounts only "to forcing the empty wits of children to compose themes, verses, and orations, which are acts of ripest judgments, in wretched barbarizing against the Latin and Greek idioms." On such knowledge of the Latin and Greek, as he claims can be given, the substance of good things and arts in due order (as of agriculture in *Cato*, *Varro*, and *Columella*; of historical physiology in *Aristotle* and *Theophrastus*; of natural history in *Vitruvius*, *Pliny*, *Celsus*; of ethics in *Plato*, *Xenophon*, *Cicero*, *Plutarch*, &c.) can be mastered in orderly perusal in acquiring these languages.

With the reading of Latin and Greek is to go along the daily "conning of sensible things (object teaching)," the study of arithmetic, geometry, geography, and astronomy with the use of the globes and of maps, the elements of natural philosophy and physics, higher mathematics with the instrumental science of trigonometry, fortification, architecture, engineering and navigation, and natural history, including minerals, plants and animals, and the elements of anatomy and hygiene. Here is a course of study closely resembling the best gymnasium and polytechnic courses of Germany; and to make the resemblance more close, the author exclaims: "To set forward all these proceedings in nature and mathematics, what hinders but that they may procure as oft as shall be needful

* See Barnard's *American Journal of Education*, v. 663; xlii. 103.

the helpful experiences of hunters, fowlers, fishermen, shepherds, gardeners, apothecaries; and in other sciences, of architects, engineers, mariners, and anatomists"—"and this will give them such a real tincture of natural knowledge as they shall never forget, but daily augment with delight."

To this range of the mathematical sciences and their applications, Milton adds "constant and sound endocrinating in the knowledge of virtue and hatred of vice, while their pliant affections are led through all the moral works of the best Latin and Greek authors, and the Evangelist and Apostolic Scriptures." Being perfect in the knowledge of personal duty, they may then begin the study of economics, followed by the beginning, and reasons of political societies (*politics*), and on Sundays and every evening, the highest matters of theology and Church history, ancient and modern. These high and severe studies are to be relieved by choice comedies and tragedies, the laws and specimens of the true epic and lyric poem, and the divine harmonies of music heard and learned; and to be closed with the study and practice of logic and rhetoric, pursued in the ancient as well as modern text-books, and in the composition of original matter, so that when called on hereafter to speak in parliament or council, honor and attention would be waiting on their lips. "These are the studies wherein our noble and our gentle youth ought to bestow their time in a disciplinary way from twelve to one-and-twenty, unless they rely more upon their ancestors dead, than upon themselves living."

Milton does not overlook the importance of physical training, and throughout the *Tractate* associates manual labor, mechanical dexterity, and athletic sports, with the highest culture—the better to fit the youth of England "both for peace or war." "Fencing, the exact use of their weapon, to guard and strike safely with edge or point; wrestling, wherein Englishmen are wont to excel; and regular military motions under sky or court, according to the season, first on foot, then as their age permits, on horseback to all the art of cavalry," are in the regular programme of the Academy which Milton would institute for every city throughout the land. To these home exercises, occupying two hours in the day, he adds occasional excursions, sometimes "to go out and see the riches of nature and partake in her rejoicing with heaven and earth;" and in the long vacations, "to ride out in companies with prudent and staid guides to all quarters of the land, learning and observing all places of strength, all commodities of building, and of soil for towns and tillage, harbors and ports of trade; sometimes taking sea as far as to our navy, to learn there also what they can in the practical knowledge of sailing and seafight. These ways would try all their peculiar gifts of nature, and if there were any secret excellence among them, would fetch it out, and give it opportunities to advance itself by, which could not but mightily redound to the good of this nation, and bring into fashion again the old admired virtues." To enlarge experience and make wise observation, foreign travel is recommended for those who through age and culture can profit by the society and friendship of the best and most eminent men in places which they may visit.

Such is a very imperfect outline of this masterly treatise* of John Milton, in which the great poet and profound scholar anticipates many of the most advanced plans and practices of this age.

* The *Tractate* of Milton will be found in Barnard's *American Journal of Education*, vol. ii. 81, and xi. 451, and in *Papers for the Teacher*, Fifth Series, p. 115.

HARTLIB—PETTY—HOOLE—COWLEY—DECKER.

The period of the Commonwealth was signalized by plans of institutions, and suggestions of new subjects and methods of instruction, which, if they had not been buried under the reactionary influences of the Restoration, would have gradually overcome, as on the Continent, the unnatural supremacy of the dead languages, and have installed new courses into the schools of a commercial and manufacturing people. Drawing, mathematics, and the experimental and natural sciences, and modern languages, would long ere this have been recognized for their value in mental discipline, general knowledge, and special uses.

SAMUEL HARTLIB (1616-1666) was the son of a Polish merchant of Luthania married to an English woman, whose connections brought him to London in 1636. His whole time and fortune, including a pension of £300 from the Council of State, were devoted to the advancement of agriculture and education, and the public service generally. He died poor, and the government of that trifling and dissolute ruler Charles II. withheld his pension, although Milton speaks of him as "one sent hither by some good Providence from a far country, to be the occasion and incitement of great good to this island," and a paper in the Philosophical Transactions twenty years after his death, asserts that "his exposures of the defective husbandry of English farmers, and the expositions published by him of the better system of Flanders, had enriched England to the amount of untold millions." His "Academy," in which [among other things] exercises of industry not usual then in common schools, and the methods of Comenius and Ratich (whose "Didactics," "Janua," and "Orbis Pictus," he had caused to be translated and printed), were introduced, and his "Propositions for the erecting of a College of Husbandry," if properly sustained, would have opened up another well-spring of national wealth.

CHARLES HOOLE (1610-1666), a graduate of Oxford, an eminent school-master, and the author of twenty-four pedagogical works, translated the "*Orbis Sensualium Pictus*" and the "*Janua Reserata Linguarum*" of Comenius, and practiced Object Teaching (the new method of our day) two hundred years ago in his school in Louthbury, London, from a text-book "adorned with pictures to make children understand it better," and from "things kept ready in every great school." His "*Usher's Duty*" and "*New Discovery of the Old Art of Teaching*," is valuable now for its intrinsic and permanent interest.

SIR WILLIAM PETTY (1623-1687), the founder of the House of Lansdowne, was not only a valuable contributor to the science of political economy, but by his "*Plan of a Trade School*," published in 1647, is justly entitled to the credit of being one of the earliest writers in the field of technical education.

ABRAHAM COWLEY (1618-1667), whose "*Plan of a Philosophical College*" (first printed in 1663) was preferred by Dr. Johnson to that of Milton's Academy, anticipated by two hundred years the propositions now under consideration in England, as well as the schools and classes now in operation under the auspices of the Science Department, in which "Art, Agriculture, Architecture, Navigation, the Mysteries of all Trades, and Natural Histories" were to be taught by Professors, "chosen for their solid and experimental knowledge of the things they teach," and assisted "by Laboratories for Chemical Operations and Gardens for all manner of experiments."

SIR NATHAN DECKER, in 1744, published an "*Essay on the Causes of the Decline of the Foreign Trade*," in which he urged the importance of English artisans learning to draw and design with taste. "A workman who is a good draughtsman will be more ingenious in a business that requires skill in drawing than one who is ignorant of it; so his work, being better designed, will improve the ingenuity of his apprentices who won't bear to see an ill-fancied piece of work."

JOHN LOCKE.

JOHN LOCKE, born in 1632, and educated at the Westminster School, and Christ College, Oxford, published in 1693 his "*Thoughts upon the Education of Children*," which soon passed through many editions and was translated into the French, Dutch, and German languages, and has had great influence on the views and practices of parents and teachers in different countries. The main end and aims of education are declared to be, a sound mind in a sound body, as the condition of a happy state in this world, the superiority of virtue to intellectual ability, and the value of good manners and practical common sense over great learning, especially in the languages and literature of the past. He enjoins the study of French before Latin, and in teaching language generally follows the methods of Ratich, Comenius, and Montaigne. He utterly eschews Latin versification, and would make the mastery of any language the occasion and medium for learning geography, chronology, and history. He urges strongly the acquisition of drawing, "as that which helps a man often to express in a few lines well put together, what a whole sheet of paper in writing would not be able to represent and make intelligible." Arithmetic, "of which a man can not have too much"; geometry, and astronomy with the use of the globes; geography and history associated; ethics and the principles of jurisprudence; grammar, rhetoric, and logic; the early and frequent practice of English composition, and the critical study of the English language, beyond any other; natural philosophy, "with such writings as treat of husbandry, planting, gardening, and the like," and the higher mathematics and physics as treated of by the incomparable Mr. Newton, constitute the subjects of the course of instruction which he recommends to the young gentlemen of England, under private tutors, in preference to the public and collegiate system, which Bacon, Milton and Cowley prefer.

Associated with these intellectual and moral studies, dancing, music, and fencing, and the acquisition of some art or mechanical trade (painting, gardening, joinery, working in iron, brass and silver, grinding and polishing optical glasses, are specified, and in one or more of these every child and youth should be exercised every day until dexterity and skill in a hundred ways are acquired), and especially a practical knowledge of book-keeping or merchants' accounts, are treated of with much detail.

ADAM SMITH.

ADAM SMITH, in his "*Inquiry into the Nature and Causes of the Wealth of Nations*," first published in 1776, devotes several chapters to Expenditures on Institutions for the Education of Youth, in which he criticises severely "the practice of the Schools and Universities, of giving exclusive attention to studies which concern only one profession and interest, and of omitting so many things which humanize the mind, soften the temper and dispose it for performing all the duties of public and private life." In place of the little Latin, so commonly and so imperfectly taught to the few, he advises "instruction to all in the elementary parts of geometry and mechanics. There is scarce a common trade which does not afford some opportunity of applying to it the principles of geometry and mechanics, and which would not therefore gradually exercise and improve the common people in these principles, the necessary introduction to the most sublime as well as the most useful sciences."

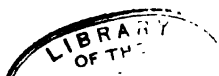
JOHN ANDERSON AND THE ANDERSONIAN UNIVERSITY.

JOHN ANDERSON, the founder of the Andersonian Institution of Glasgow, and one of the earliest promoters of popular instruction in science, was born in the parish of Roseneath, Dumbartonshire, in 1726. After an elementary education in Sterling, and a more advanced course in the University of Glasgow, he was appointed Professor of Oriental Languages there in 1756, and of Natural Philosophy in 1760. He illustrated his college lectures in the latter branch by the results of observations in the workshops of Glasgow. To carry out his views of instruction, he commenced a class, which he called his *anti-toga* class, of artisans, who were allowed to attend in their working dress. He entered into the republican spirit of the French Revolution, and presented to the National Convention an improvement in the carriage of the cannon, and suggested the carrying of newspapers by balloons, over territory cut off by cordon of troops. In 1786, he published a popular work entitled "Institutes of Physics," and later, "Essays on War and Military Instruments." He died Jan. 13, 1796, having devised just before his death his whole property to establish in Glasgow the *Andersonian University*.

The ANDERSONIAN UNIVERSITY was designed by the will (dated May 5, 1795) of Prof. John Anderson, to become an institution in which should be perpetuated the popular courses of instruction instituted by him for the benefit of the artisans of Glasgow, while he was Professor of Natural Philosophy in the University. His plan was more comprehensive (embracing the four academic departments) than his estate enabled the Trustees (81 members, who were elected for life, unless disqualified by non-attendance) to carry out, and operations were commenced in 1797 by the establishment of a Professorship of Natural Philosophy, of which Dr. Thomas Garnett was the first incumbent. His first course was delivered in the autumn of 1796, in the Trades'-hall, to an audience of over one thousand persons of both sexes. Dr. Garnett was succeeded by Dr. George Birkbeck in 1799, who established a special course for practical mechanics in Glasgow, who attended to the number of five hundred. On his removal to London in 1804, he was succeeded by Dr. Andrew Ure, who added to the courses of the institution one in Chemistry applied to the Arts, and held his position till 1830.

The Lectures of Prof. Anderson, Dr. Garnett, and Dr. Birkbeck, are generally considered as the origin of *Mechanic Institutes*. Both Lord Brougham and Dr. Birkbeck, in their advocacy of the establishment of these Institutes, were in the habit of citing these lectures and the attendance of mechanics on them, as the best evidence of the value of this method of instruction for the working classes. Prof. Anderson, in particular, deserves the eulogium of Dr. Birkbeck, "of having opened the temple of science to the hard laboring mechanic and artisan."

The original estate, beyond the valuable library and apparatus valued at \$15,000, was only sufficient to purchase a single building in John street, which in 1828 was exchanged for the City Grammar School buildings, which were enlarged and refitted for the purposes of the museums, library, and class-rooms of the institution. The subjects now taught by fifteen professors, are Natural Philosophy, Chemistry, Natural History, Drawing, Mathematics, Veterinary Surgery, besides a full course of Medicine, and other studies which constitute a modern curriculum of science, for which 2,000 tickets (3s.) are sold annually.



ANDERSON—RUMFORD—BIRKBECK—BROUGHAM.

Under the influence of the tried success of the Andersonian Lectures (1793 and 1795) and the Mechanics' Institute at Glasgow, the Royal Institution (Rumford in 1799) and Mechanics' Institute (Birkbeck and Brougham in 1823) at London, the Society of Arts (Horner in 1821) at Edinburgh, and similar institutions were established in different parts of the kingdom to the number of 800 in 1828, which had increased under different names, and with modifications of aims and methods, but all substantially and avowedly directed to the scientific and technical instruction of the members, who were largely made up of working men, to 4,000 associations in 1868. The most potent appeals in summoning the mechanics to this work, were made by that earnest and eloquent champion of popular education, Henry Brougham, the Great Commoner, as he was called, before his true glory was lost in the miscellaneous and no longer significant title of Lord. His essay on the *Pleasures and Advantages of Science*, with which he inaugurated the Society for the Diffusion of Useful Knowledge, and his various efforts in the House of Commons, and the House of Lords, to secure the establishment of a system of public schools for England, entitle him to a distinguished position in the records of the early and efficient champions of scientific popular education.*

PLAYFAIR—SPENCER—WHITWORTH—RUSSELL.

Out of the many able and timely utterances by pen and voice, from the establishment of the Schools of Design in 1836 to the thorough organization of the Science and Art Department in 1869, including its indefatigable secretary, Henry Cole; from the discussions embraced in and which grew out of the Reports of Parliamentary Commissions (numbering over 36 folio volumes) on the Universities of Oxford and Cambridge, of Scotland and Ireland, the Public Schools and Endowed Grammar Schools of England, Ireland and Scotland, on Science in institutions of higher culture; from special publications, official and individual, on scientific and technical instruction, and the conferences under the auspices of the Society of Arts, British Science Association, and Chambers of Trade; from the eighteen Reports with all the valuable appended papers of the Science and Art Department,—has come the partial realization of the desire of Bacon, Milton, Hartlib, Petty, Cowley and others, the gradual result of innumerable contributions of many earnest workers in the field of scientific, realistic and technical education. We will here name only Prof. Lyon Playfair's *Industrial Education on the Continent*"; Herbert Spencer's *Relative values of different Knowledges*"; Whitworth's brief *Letter* accompanying his endowment of \$500,000 for the encouragement of mechanical dexterity and scientific knowledge in working men; and J. Scott Russell's *Systematic Technical Education of the English People*, in 1869. The well directed and constant labors of the Council of the Society of Arts, in behalf of scientific and industrial schools, can not be too highly estimated.

Several of the Plans of institutions, in which mathematics and the sciences of nature hold a prominent place, referred to in this historical glance of individual efforts to promote scientific and technical education in England, will be brought together in a separate chapter.

* An extended notice of Brougham's Educational Labors will be found in the American Journal of Education, Vol. VI., pp. 467-506; and a History of Mechanic Institutes in Vol. X., p. 332.

II. ASSOCIATED EFFORTS TO ADVANCE SCIENCE AND THE ARTS.

SOCIETY FOR THE ENCOURAGEMENT OF THE ARTS.

THE SOCIETY OF ARTS was founded in 1754, at a meeting suggested and called by William Shipley,* a landscape painter, who in 1747, "from a well-grounded persuasion of the extensive utility of the art of drawing to the nation," erected an Academy in the Strand, where he taught this art and practiced his profession. The object of the founders was proclaimed from the start in the designation which it bore—*The Society for the Encouragement of the Arts, Manufactures, and Commerce*.

Among the earliest to appreciate the beneficent aims of the Society and extend their scope so as to embrace the Colonies, was Benjamin Franklin, of the Colony of Pennsylvania, who communicated in 1755, a *Proposal for Promoting Useful Knowledge among the British Plantations in America*, bearing date May 14, 1753. The Society readily adopted the views of the author, and in 1755 elected him a corresponding member. In acknowledging the letter announcing the fact, he says: "Although you do not require your correspondents to bear any part of your expense, you will, I hope, permit me to throw my mite into your fund, and accept the twenty-guineas I propose to send you shortly, to be applied in premiums for some improvements in Britain, as a grateful though small return for your most kind and generous intention of encouraging improvements in America. I flatter myself, from that part of your plan, that those jealousies which were formerly entertained by the mother country begin to subside. Never be discouraged by any apprehension that arts are come to such perfection in England as to be incapable of further improvement. As yet the quantity of human knowledge bears no proportion to the quantity of human ignorance. The improvements made within these 2,000 years, considerable as they are, would have been much more so, if the ancients had possessed one or two arts now of common use—those of copper-plate and letter printing. Whatever is now exactly delineated and described by these can scarcely (from the multitude of copies) be lost to posterity. And the knowledge of small matters gives the hint, and is sometimes the occasion of great discoveries, perhaps ages after."

At that time the industrial condition of England was very backward and unpromising. Coal was hardly used, woolen was spun by hand, machines being employed neither for this nor other purposes; education was neglected, and art discouraged; agriculture was in its rudest state, very few labor-saving tools being used, while drainage and the planting of high lands were not practiced. Internal communication was so neglected that pack-horses furnished the best means of transportation. Only the coarsest pottery was manufactured; most even of genteel tables were furnished with vessels of wood, pewter and leather;

* MR. SHIPLEY, who acted as Secretary of the first meeting of the Society, held March 29th, 1754, entered in the first minute-book of the proceedings, three letters published anonymously in 1731, advocating the establishment of an Association to be called the Chamber of Arts, "for the improvement of operative knowledge, the mechanical arts, inventions, and manufactures;" and after them, the Proposal issued by Benjamin Franklin for the formation of a Society at Philadelphia, to be called the American Philosophical Society, "for the Improvement of Useful Knowledge among the British Plantations of America."

and as to cloths, only the coarsest fustians were manufactured. Most elegant objects of artistic design, of household use, or of wear, were brought from abroad. For instance, linen, silks and porcelain came from the Continent; while for chintz, muslins, and the finer fabrics, the English went as far as India.

To remedy this state of things, the Society of Arts set itself at work, and, in March, 1754, after noting "that Drawing is absolutely necessary in many employments, trades and manufactures, and the encouragement thereof may prove of great utility to the country," resolved to offer premiums to a certain number of boys and girls for superior proficiency in this art, ascertained by a committee of examination; as well as other premiums for discovery of cobalt, the growth of madder, and the manufacture of buff leather. The adjudication under this first competitive exhibition of artistic skill in England was made in 1755; and in the following year, in the absence of a National Gallery, the Duke of Richmond, who had begun a collection of statues, busts and models in 1750, allowed examples to be selected for copying for the premiums of that year.

From the date of its thorough organization in November, 1757, the Society has gone forward steadily in its efforts to advance the industrial interests of the Empire, and not a few of the great improvements in Agriculture, Commerce, and Manufactures, originated in the suggestions of its members, and in the stimulus and rewards of their associated labors. Upwards of \$500,000 have been expended in prizes and other forms of encouragement for new inventions and improvements in the useful arts.

In art, the establishment of the British Museum, the National Gallery, and the South Kensington Museum, is probably indirectly owing to its influence.

The Society has paid much attention to the improvement of material, implements, and processes of art. Bronze casting and chasing, iron casting, artistic metal, and other works, have been much encouraged; also the imitation and copying of intaglios or cameos.

The Society contributed to establish the struggling art of lithography in Great Britain, giving a gold medal to Senefelder, its discoverer, and publishing accounts of the processes in its transactions.

The revival of the art of steel engraving, carried to such perfection by Albert Durer, was the result of experiments set on foot by its committees, who succeeded after many experiments. The discovery superseded to a great extent the use of copper plates.

AGRICULTURE was not included in the original scheme of Shipley himself, but was at once added, the system of premiums being adopted as the best spur to industry. The improvement of agricultural produce, the planting of timber, and the reclamation of waste lands, were the objects of papers, discussions, and awards.

The present condition of the grass and root crops is owing to this attention. This first influenced the farmer to discriminate and separate the different sorts of grass, and to cultivate extensively, carrots, turnips, potatoes, rhubarb, and similar roots. Premiums were awarded for agricultural machines. Special attention was paid to oaks, gold medals being awarded to those who planted them in great numbers. But other trees for timber were not neglected. Timber was of more consequence at that time than it is now, when coal has so far superseded it, and iron is produced with less consumption of wood.

The Society patronized bee-keeping, and attempted, in 1786, to establish

the breeding of silk-worms. Harvesting and reaping have always been prominent among the processes whose improvement it has attempted.

Not least among its benefits to agriculture, is the establishment of branch societies throughout the country, from which many of the county agricultural societies have originated.

At first, premiums were not awarded to persons living in Ireland and Scotland, as these countries had Societies of their own, but this rule was afterwards abolished.

The agriculture of the Colonies, of which the United States was then one, was fostered by the care of the Society, and many spices and trees were naturalized in various territories, such as cinnamon in Jamaica, the nutmeg in St. Vincent, the clove-tree in Trinidad, bread-fruit in the West Indies, and the mango in Barbadoes.

Hemp was made a special study, and costly experiments were instituted with a new variety, imported from China.

The wool-growing capabilities of New South Wales, now so important, were first made known by the Society.

The fish trade was fostered, and a regular supply to the London markets established. This is no small matter to the health and comfort of all classes, and especially of the laboring population.

In manufacturing industry, the extraordinary perfection of the spinning-wheels, and the winding, doubling, and twisting machines for linen, cotton, &c., is directly due to the premiums offered for these inventions.

Calico-printing was thoroughly studied and improved, under the stimulus of its premiums and publications. The straw-plait trade of England was created by the Society, by the encouragement of schools where the art was taught.

The art of purifying fish-oil; of making point-lace, which was particularly recommended to young English women of small fortunes; mill-stones and hand-mills, safe-cranes for hoisting goods, crucibles and melting pots, internal navigation—the history of all these shows how varied and universally useful this Society has always been, by stimulating inquiry, by setting experiments on foot, and by publishing frequent essays.

In 1852 it began the publication of a weekly Journal, now in its eighteenth year, with many articles on varied topics.

Exhibitions have been from the first year of its existence a prominent feature in the Society's scheme. At first these exhibitions were confined to the drawings and copies of the candidates for the prizes for copying. Other artists then applied for permission to exhibit their works in the Society's rooms, and these exhibitions were held for several years, with great success. The result was that a spirit of emulation was stimulated, which greatly advanced British art.

The first mechanical exhibition held by the Society was of hand-mills for grinding corn, sent in to compete for premiums in 1801. The Fairs and Bazaars held in Birmingham, Manchester, and especially that in London in 1846, were assisted by the offer of prizes of the Society; and in its rooms, and under the lead of its President, Prince Albert, the Great Exhibition of 1851 originated.

The Society obtained a guarantee fund of £400,000 for the Exhibition of 1862, nominated the Royal Commissioners and secured their charter of incorporation, and thus originated it. In 1867 the Society paid the expenses of a visit by a large delegation of workmen, representing different branches of

industry, to the Paris Exhibition, whose reports attracted much attention, especially their comments on the superiority of the technical and artistic instruction enjoyed by the artisans of Paris over those of Great Britain.

The exhibition of educational appliances which took place in 1854 through the Society, was due to the energy of one of its most prominent members, Mr. Harry Chester.

Among the benefits secured by it, must not be forgotten the improved patent law, by which patents were greatly cheapened. Exhibitions of patents were held for several years after the institution of these new laws, and a library and museum of patents were formed, the power being given them by an act secured by the Society.

It has always endeavored to improve the scientific training of artisans. It sent a number of them to the last Universal Exhibition at Paris, paying the expenses of the trip. It has established a course of lectures upon the relations of science and art to industry, a bequest of Dr. Cantor in 1856, amounting to about \$25,000. Let us here remark, in passing, that its funds are derived from the voluntary payments of the members, and such bequests as have been added to it from time to time. It has never received government grants.

The preceding brief sketch of the achievements of the Society will give some idea of its vast and varied activity. The sketch is incomplete.

The operations of the Society, consisting of over 3,000 members, embraced in 1869 the following particulars:—

1. Regular meetings for the reading of papers, and discussions on the same, from the first Wednesday in November to the last in June, on subjects relating to inventions, improvements, and discoveries in the useful arts.
2. The publication of a weekly Journal, devoted to the proceedings of the Society, and of affiliated Institutions, and to the promotion of the arts generally, which is sent free to the members.
3. The maintenance of a Library and Reading Room, devoted to publications on the arts.
4. Conversations, held from time to time, on occasions of society and public interests.
5. Courses of lectures, established by legacy of Edward Cantor, delivered every fortnight, free to members and persons introduced by them, on the arts, the applied sciences, commerce, and industry generally.
6. Scheme of examination of candidates, from classes in the three hundred Institutions in union, conducted by men eminent in science and the arts, by which the deficient early instruction and further scientific education of a practical character is provided, and stimulated by prizes and chances of promotion in business among the adult population.
7. The administration of scholarships, exhibitions, and prizes, instituted by the Society, companies, and individuals, on Political and Social Economy, Wood and Ivory Carving, Modeling, Glass-engraving, Fruit and Vegetable Culture, Preservation of Meat for Food, Leather-Embossing and Ornamentation, and discoveries, improvements, and inventions in the Arts generally.
8. The advancement of scientific and industrial instruction, and the better education of the people generally, by papers read at the regular meetings, a special conference, and publications in the Journal.

ROYAL SOCIETY—ROYAL INSTITUTION.

THE ROYAL SOCIETY originated with a few men of similar scientific tastes, who began in 1645 to meet weekly, at first at each other's houses, and afterwards in a room of Gresham College, to converse on mathematical and philosophical subjects. They were not formed into a regular Society till 1660, and not incorporated till 1662, when the king (Charles II), and his brother, the Duke of York, entered their names as members. In 1667 the number of members had increased to 200, who paid the sum of 1s. per week to meet incidental expenses. From the payment of this sum, Mr. Isaac Newton, whose discoveries in mathematics and natural philosophy were given to the world through this Society, on his election in 1672, prayed to be excused. It received an early grant from the government to secure a building for the purposes of the Society, and has from time to time accepted the expenditure of appropriations by the king, parliament, and individuals, for the prosecution of scientific inquiries—and 1,000*l.* appears annually in the appropriations to this Society.

The original scheme embraced the following objects:—1. All mechanical inventions. 2. Astronomical and optical. 3. Anatomical. 4. Chemical. 5. Geological. 6. Histories of trade. 7. Record of all natural phenomena, and experiments. 8. Correspondence in the interests of science. Among the presidents we find the name of Robert Boyle, Isaac Newton, Hans Sloane, Joseph Banks, Humphrey Davy, Earl of Rosse, &c.

Every department of science, in its abstract or applied forms, has been advanced by the investigation of its members, and the papers published in its 150 volumes of Transactions. Its library amounts to 45,000 volumes. Its affairs are managed by a council of 21 members, including the president.

THE ROYAL INSTITUTION OF GREAT BRITAIN was established in 1799, at a meeting of men eminent in science, held on the suggestion of Count Rumford (Benjamin Thompson, born in Woburn, Massachusetts in 1752), at the house of Sir Joseph Banks, for the purposes of forming a Society whose special object should be not, like the Royal Society, so much the investigation of pure science, "as the diffusion of a knowledge, and facilitating the general introduction of useful mechanical inventions and improvements, and for teaching by courses of philosophical lectures and experiments the application of science to the common purposes of life." One of the modes of diffusing information was to collect in a hall of the institution "all such new mechanical inventions and improvements as shall be thought worthy of public notice, and more especially of all such contrivances as tend to increase the conveniences and comforts of life, to promote domestic economy, to improve taste, or to advance useful industry." These noble objects have been advanced by means of the Public Lectures, and the original researches carried on in the audience-room and laboratory of this Institution by Sir Humphrey Davy and Sir Michael Faraday, whose professorships of chemistry cover almost its entire history till the death of the latter in 1862. Its founders followed very closely in their original plan the views of the founder of the Andersonian University of Glasgow, whose Professor of Chemistry, Dr. Garnett, inaugurated that feature of the Institution.

The philosophical institutions of Edinburgh, Manchester, and other larger provincial towns, were planned after that of London, and all announced their special objects to be to further scientific research, and the various arts of life.

SPECIAL SOCIETIES.

The earliest Society for the special purpose of advancing Agriculture, of which we have found any notice, bears the title of "*Society of Improvers in the knowledge of Agriculture in Scotland*," instituted in 1723. It numbered for 20 years an average of 300 members, and a volume of its Transactions was printed in 1743. In this publication there is notice of a threshing machine invented by Michael Menzies, worked by water, and warranted, with one man, to do the work of six. The Society of Arts, instituted in 1754, included Agriculture among the industries which it labored to promote, by prizes and discussions. In 1777, the Bath Society was established in imitation of the London Society, "for the encouragement of Agriculture, Arts, Manufactures, and Commerce, in the counties of Somerset, Wilts, Gloucester, and Dorset." The Highland Society was established in 1784, received a royal charter in 1787, and reorganized in 1834 with the title of the "Highland and Agricultural Society of Scotland." The Board of Agriculture, of which Sir John Sinclair was president, and to which the English Parliament voted for several years 3,000*l.*, was established and chartered in 1793. In 1834, a new era of associative activity commenced, with the reorganization of the Highland Society in 1834, of the Yorkshire Society in 1837, the Royal Agricultural Society in 1838, the Irish Improvement Society in 1841, and went on with the formation of numerous Farmers' Clubs until in 1864, a published list contained 354 Agricultural Societies.

The *Linnean Society*, for the promotion of zoölogy and botany, was founded in 1788, and received a royal charter in 1802. Its founder, Dr., afterwards Sir James Edward Smith, came into possession by purchase (1,000*l.*) of the herbarium and museum of Linnæus, and of the immense collections of Sir Joseph Banks, both of which with vast collections of his own, on his death in 1828, became the property of the Society. This Society through its Museum, Library, Monthly Meeting, and Published Transactions, has advanced the departments of Natural History to which it has been devoted.

The *Geological Society*, instituted in 1807, under the lead of such men as Banks, Davy, de la Beche, Phillips, Lyell, and Murcheson, has contributed largely to develop the science of Geology, and make it serviceable to the mining, agricultural, and manufacturing interests of the country. The Museum of Practical Geology, the Geological Survey and Maps, the Mining Record Office, and the School of Mines, are among the trophies of its activity.

The *Royal Horticultural Society* was founded in 1804 and incorporated in 1809. In 1822 the garden at Chiswick was founded, and in 1827 the first of those Annual Fetes or Exhibitions of Horticultural productions was held,—by means of which the seeds and slips of the larger part of the most highly prized occupants of modern gardens, in all parts of the world, have been introduced and exchanged. By an arrangement with the Commissioners of the Exhibition of 1851, a space of 22 acres of the Kensington Gore Estate has been leased, and the appropriate improvements in grounds and structures have been made at an expense of £120,000 (\$700,000)—offering unrivaled facilities for the display of Flowers and Fruits, for the pleasure and profit of professed gardeners, amateurs, and the public generally. Here the Science and the Art of Gardening, for economical and artistic purposes, will be wedded to the sister arts of Architecture, Sculpture, and Painting.

SPECIAL INSTRUCTION IN MUSIC.

MUSIC, as a source of recreation and rational enjoyment to all, and especially to the laboring class, and not as an accomplishment to the few, has not received governmental aid or administration in England. In its highest departments, and its uses, as part of the organization of the army, it has received some encouragement and chartered privileges; but its improvement and dissemination has been effected by voluntary associated effort.

Diplomas in music, both of bachelor and doctor, are conferred by the universities of Cambridge and Oxford.

The first Professorship of Music was provided by Sir Thomas Graham in the College instituted by him in 1575—a college which seems to have done more for its professors (many of whom have been very eminent in science) than for the public.

In 1720, a Society with Handel at its head, received the patronage of the Court, and while performing the oratorios of its president enjoyed splendid success; but we find no notice of its activity after Handel's death.

The Royal Academy of Music, established in 1822, and incorporated in 1830, has maintained schools for instruction in all branches of music. It has received for several years an annual grant of 500*l.* in aid of its operations, which, however, have not advanced beyond an annual exhibition, the dissemination of musical taste and skill through schools and assemblies of the people.

In 1839 Professor Edward Taylor, the Graham Professor of Music, delivered lectures in all the principal towns of the kingdom to stimulate the general cultivation of musical taste and skill, and thus originated a large number of musical associations.

In 1842 the Committee of Council on Education undertook to recommend the system of Wilhem, which at one time was quite popular in France and, as modified by Hullah, attained considerable success in England, but the interposition of the government, even to this extent, was not well received by special teachers and schools of music; and the measures already taken were soon abandoned. But Mr. Hullah went on with his Teachers' Classes at Battersea, and Exeter Hall, and his Singing Classes at Eton, Winchester, Charter House, and other great schools, as well as Pauper Schools, and thus fairly inaugurated again in England an era of popular music.

In 1865, the Society of Arts raised a committee to investigate the subject, and much information of Continental Schools of Music of the highest grade was obtained, and a memorial was presented to government for some aid by which a higher standard of musical taste and skill should be established for the whole country.

This aid the Committee think can best be administered through a National Academy, whose courses of instruction should be open to (1,) a limited number of persons, who can in open competition give evidence of great musical ability and willingness to serve the public as professors of the Art; (2,) scholars from cathedral and other musical bodies; and, (3,) to others on payment of fees.

Musical societies and clubs exist in almost every town and village in the kingdom. Among the earliest in London was the Madrigal, 1678; Academy of Ancient Music, 1710; Catch Club, 1762; Glee Club, 1787; Sacred Harmonic, 1776; Philharmonic, 1813, &c.

MILITARY SCHOOL OF MUSIC AT KNELLER HALL.

In the British Army the cost of maintaining the regimental bands falls upon the officers. In the infantry a sergeant, a corporal and nineteen privates are taken from the effective strength of each regiment to form a band. These receive their ordinary regimental pay,—the rest of the pay, and the entire salary of the band-master, if a civilian, together with the cost of the music and musical instruments, are provided out of the Band Fund, which is raised by "stoppages" from the officers on first appointment, and promotion, and by subscription. This fund is managed by a committee of officers. Owing to difficulties in retaining the men, and of finding band-masters with all the requisite qualifications, the Commander-in-Chief (Duke of Cambridge) established a Military School of Music in 1856, in concert with the Secretary of War, which was opened in Kneller Hall for the reception of pupils in March, 1857. The institution must be viewed (1) as a barrack, and (2) as a school of music. (1). As a barrack it is under the direction of the Secretary of War, and is managed as any other barrack. (2). As a school it is under the immediate direction of a military officer (who is appointed by the Commander-in-Chief), and a musical staff composed of nine permanent professors, four occasional professors, and a varying number of special assistants who are selected from the first-class students. There is also a schoolmaster who gives instruction one hour a day in general knowledge to each class, and a military chaplain. The instruments taught in Soprano (8); Alto (3); Tenor (3); Bass (6). The students are divided into four classes, each of which is divided into sections according to the instruments to be learned. Seven hours a day are devoted to obligatory study—but more are given, and a restriction prohibits all practice after 6.45 in the evening.

This course of study occupies two years, and there is a higher which comprises, beside practical instruction in playing and teaching the instruments composing the band, some general acquirements under the theory of harmony. There is also practical training in the duties of a conductor. In addition to ordinary military music, classical concert pieces, or chamber music, specially arranged for wind instruments, are performed. Cheap admissions to the operas and principal concerts of the metropolis are obtained (900 in one year), to such of the advanced students as are recommended for diligence by the professors.

Pupils are selected from the various regiments, and often selected for this special purpose. Boys specially trained for the bands are obtained from the Royal Military Asylum, Chelsea, the Hibernian Military School, Dublin, and the Metropolitan Poor-law School. Each candidate must be examined by the surgeon of the regiment, and certified to as in good health and with no tendencies to disease liable to be aggravated by playing on a band instrument.

A military band-master is now sanctioned by the Government for any regiment and battalion throughout the service, who receive regimental pay of first-class staff sergeant, and 100*l.* from the Regimental Band Fund.

The expenses of Kneller Hall as a barrack are borne by the government; as a school of music, by the regimental officers—including an original assessment of 5*l.* for supply of instruments, and the salaries to about 1,100*l.* annually.

The average number of students annually admitted is 74; the average number in attendance, 148. The total number admitted since 1857 is 592, of whom 163 were practiced musicians, 63 band-masters, 271 band-men.

ROYAL GALLERIES AT WINDSOR AND HAMPTON COURT.

THE ROYAL GALLERIES of Windsor Castle and Hampton Court contain valuable pictures, and have helped to encourage artists and form a taste for art in England. Henry VIII was the first to form a gallery. He invited Raphael to England, who did not accept, but painted a small picture, which is now in the gallery at St. Petersburg. He did succeed in attracting Hans Holbein, a native of Basle, and many portraits of his painting are still at Windsor and Hampton Court. Philip II, during the few years he bore the title of king of England, secured the services of Titian in painting for Queen Mary. Queen Elizabeth did nothing for art, except to procure twenty-two portraits of herself from as many different artists. James II secured several valuable portraits from Netherland painters. During his reign, Thomas Howard, Earl of Arundel in 1606, and Villiers, Duke of Buckingham, commenced the formation of galleries of antiques and paintings, the latter purchasing several of Rubens' productions at an outlay of 10,000*l*. Charles I secured valuable pictures by Titian, Raphael, Correggio, Gulio Romano, in the Mantuan Gallery, and at other times, from Rubens, Van Dyck, and all the eminent artists of his day—an aggregate of 1,387 pictures, and 399 pieces of sculpture, besides medals, engraved gems, and other objects of art, including 54 volumes of drawings and prints, and among them a volume of drawings by Michael Angelo. This collection, immediately after his execution in 1649, under a resolution of the House of Commons, was sold, and thus, in the course of two years, "this noblest collection of pictures, antiques, statues, and busts, procured at infinite expense and trouble, from Rome and all parts of Italy—was dispersed to form parts of the royal collections of London, Spain, and France." A few were purchased or retained by Cromwell for the State, and some were recovered and repurchased by Charles II; but the foundation of a great National Gallery, superior to any other in Europe, was lost. We will not attempt to follow the history of these Royal Galleries. It was reserved to Queen Victoria, not only to give the public and artists free access to these Galleries, as her predecessors had done, but to place the choicest of these pictures in public exhibitions to be seen by the largest number of people, and to bring them within the study and copying of students not only in the capital but in provincial schools of art.

ROYAL ACADEMY OF ARTS.

THE ROYAL ACADEMY OF ARTS was constituted Dec. 10, 1768, and opened its first exhibition in Somerset House in May, 1780. The objects set forth in its charter are:—1. The establishment of a well-regulated School, or Academy of Design, for the use of Students in the Arts; and 2, An Annual Exhibition, open to all artists of distinguished merit. The Society consists of forty Royal Academicians, twenty Associates, and six Associate Engravers, all of whom must be confirmed, on their election by the Society to fill vacancies, by the sovereign. The Academy possesses a valuable library of prints, casts from the antique, and pictures by old masters, as well as a specimen painting or work of art, of each member, from his own design and execution. The School is open to applicants, whose drawing or model carries evidence of sufficient ability to profit by the instructions and opportunities, and the testimony of an Academician as to moral character. After three months' successful practice in drawing or modeling from one of the antique figures, he is accepted as a student.

BRITISH MUSEUM.

The BRITISH MUSEUM originated in the individual liberality of Sir Hans Sloane, who was born in the north of Ireland in 1660, but studied and practiced the profession of medicine in London, where he enjoyed a high reputation both as a man of science and a physician. In consideration of the first, he was elected President of the Royal Society in 1727, and was created baronet in 1716 by George I, and physician in ordinary to his successor. He died in 1752, leaving by will a large museum of natural history, a valuable library, and many rare objects of scientific interest, which he had accumulated in a long life at an expense of £50,000, to the care of the public, on condition that Parliament would pay £20,000 to his heirs, and make provision for their preservation and increase. The offer was at once accepted, and an act passed in 1753, entitled "An Act for the purchase of the Museum or Collection of Sir Hans Sloane, Bart., and of the Harleian Collection of Manuscripts, and procuring one general repository for the better reception and more convenient use of the said Collection, and of the Cottonian Library, and additions thereto." In pursuance of this Act, the sum of £300,000 was raised by a lottery; £20,000 was paid for the Sloane Museum, £10,000 for the Harleian Collection of Manuscripts, and £10,250 for Montague House, with a garden of eight acres in Bloomsbury district, a mansion well adapted to accommodate the resources of this National Collection, large as they were for that period. The Cottonian Library was begun by Sir Robert Cotton (b. 1570—d. 1631), and embraced many ancient deeds and charters, among them the original manuscript of *Magna Charta*. It became the property of the nation in 1700 for £4,500. The Harleian Manuscripts, begun by Robert Harley, created Earl of Oxford in 1711, and increased by his son, the second Earl, were purchased in 1753. From 1759, when the British Museum was first opened to the public, it has received frequent and large accessions by purchase, gift, bequests, and loans, until it has become an intellectual treasure-house not surpassed in its way by any other in the world, and worthy of a great nation, toward which there is an annual appropriation of £100,000. Among the accessions by gift was the library of George II, of 10,000 volumes; the library of George III (63,000 volumes), estimated to have cost £200,000 the Elgin marbles, purchased in 1816 for £35,000; the Egyptian monuments, collected mainly by the French, and acquired by the capitulation of Alexandria in 1801; the Townley marbles, collected by Charles Townley (begun in 1768), and purchased by Parliament for £28,000; the Etruscan and other Italian antiquities, purchased for £9,000. Total cost to 1869, £3,000,000.

NATIONAL GALLERY.

The NATIONAL GALLERY, now an object of annual Parliamentary grant, is of recent origin. After losing many opportunities to secure choice collections, which are now among the most valuable treasures of the National Galleries of France, Prussia, Russia and Belgium, Parliament voted in 1824 the sum of £57,000 to purchase 28 valuable pictures of Mr. Angerstein, and to provide for the reception of 29 more donated by Sir George Beaumont, which together were placed on exhibition in 1825. From 1824 to 1843, 19 pictures were bought at an expense of £48,000; and from 1843 to 1869, 155 pictures at a cost of £104,000. Total cost of 360 pictures, £270,000. Of the 820 pictures (belonging to the Gallery in 1870) 427 are by foreign artists, and principally old masters; and 460 by British artists. More than one-half were bequeathed or donated.

GOVERNMENT SCHOOLS OF DESIGN.

In 1835, Mr. William Ewart,* member of Parliament from Liverpool, succeeded in raising a select Committee of the House to take into consideration "the best means of extending a knowledge of the arts and of the principles of design among the people (especially the manufacturing population) of this country; also to inquire into the constitution, management and effects of institutions connected with the arts." This Committee (continued) in 1836 carried on its inquiries for two sessions, and reported to this effect:—"That from the highest branches of artistic design to the lowest connection between drawing and manufactures, the arts had hitherto received little encouragement; that a lamentable ignorance of art was manifest among English workmen, especially in the fancy trades, the silk, ribbon, china, and similar trades, although an earnest desire for instruction appeared to prevail among them; that in this respect the workmen of France, and of other parts of the Continent, enjoyed superior advantages, the result of which was that French manufactures were in many cases preferred to British solely on account of the superiority of the patterns; and that this superiority on the part of French workmen appeared to be in a great measure attributable to the Schools of Design, or the general taste, diffused throughout that country by the practice of drawing, and the multiplicity of objects of art accessible to workmen, and the people generally."

In 1836, in compliance with the recommendations of this Committee, a Government School of Design was established, under the auspices of the Board of Trade, of which Lord Sydenham was president, in Somerset House. It was placed under the superintendence of a Council consisting of several members of this Board (Mr. Elty, Sir R. Westmacot, Mr. Cockerell), several eminent artists (Eastlake, Chantrey, Callcott, Wilkie), and two or three other persons (Lord Colborne) distinguished for their knowledge of the arts. The immediate management of the institution was intrusted to a Director, an artist by profession, and who has generally officiated as one of the teaching masters. The first Director was Mr. Papworth, who was succeeded by Mr. William Dyce, in 1838.

In 1840, Mr. William Dyce, who in 1836 had submitted an admirable course of study for a School of Design contemplated by the Board of Directors for the encouragement of arts and manufactures in Scotland, was employed by the Council of the London School to make a tour of the Continent, for the purpose of visiting schools of this class, and ascertaining the different modes of instruction there followed. On his return he made a report to the Board of Trade, afterwards printed by Parliament, which contained much useful and interesting information on the subject of technical education both in France and Germany. He was soon afterwards made Director of the School at Somerset House, which office he filled with great success, until he resigned, because its duties were found inconsistent with his professional engagements, and was succeeded by Mr. Wilson in 1843.

In 1842, a School of Design for Females was opened in Somerset House, and at different periods branch schools were established at Spitalfields, Manchester,

* Mr. Ewart was born in Liverpool in 1798, educated at Eton, and Christ Church, Cambridge, where he graduated B. A. in 1821. He represented Liverpool in Parliament since 1828, and has signalized his membership by originating the legislation which established the Schools of Design, the system of Town and Borough Public Libraries, and by a sturdy support of all educational measures.

Birmingham, Coventry, Sheffield, Nottingham, York, Newcastle, Leeds, Norwich, Paisley, Dublin, Belfast, and Glasgow. These provincial schools, as well as the central school at Somerset House, were visited by an official Inspector.

In 1841, £10,000 were placed by Parliament at the disposal of the Council, for the special purpose of assisting in the establishment of Schools of Design in the provinces. A portion of this sum was expended in the formation of a library, and a collection of drawings, casts, and models, which had been begun in 1838.† The teaching force of the central school, which originally was confined to two, in 1848 embraced six, including the Director and Head of the Female Department.

In 1846 a special committee of the Council was appointed, of which Mr. Redgrave, of the Royal Academy of Arts, was chairman, to inquire into the discipline, management, and improvement of the school. This Committee summed up their examination substantially as follows:

- (1.) That the principles of ornament, and the practice of original design as applicable to manufactures, were not efficiently taught.
- (2.) That a knowledge of manufacturing processes, so as to enable the student to unite fitness and practicability, was not communicated.
- (3.) That a large portion of the students receive instruction only in elementary drawing.
- (4.) From want of space, no sufficient instruction exists in painting.
- (5.) No sufficient accommodation for modeling, and none for casting, exists.
- (6.) That the collections of works of art, and books of prints, are practically inaccessible to the students from the want of room, and a descriptive catalogue.
- (7.) That the existence of a Directorship is a barrier between the Council and the masters.
- (8.) That the Council is burdened with too many official and financial details.

In conclusion the Committee find, that although the methods of instruction did not at the start accomplish all that the most sanguine anticipated, nevertheless, both the central and provincial schools were accomplishing much good.

In 1849, as time enough had elapsed, and sufficient experience had been collected, to test the value of the system inaugurated in 1836, Parliament instituted another Committee, of which Milnor Gibson was chairman, "to consider

* The Report of Mr. Dyce is full of valuable remarks suggested by his observations abroad:—

"Design for industry is not an abstract thing; it is not the business of the designer to produce good patterns for every possible condition of manufacture, but, taking it as he finds it, to bring his cultivated taste to bear on its improvement. It is the fashion of each succeeding season that he has to deal with. The practice of the French manufacturers in this respect seems to me worthy of being noticed. It is, I believe, considered by them that fashion is something more than the caprice of the moment; and though individuals of rank and of celebrity of some kind may, for a time, give a particular bias to the mode, yet that the current of taste in the ordinary matters of life has its origin, and takes its direction, from the general character and habits of society. Hence, they say, if we refer to the history of any past age, we shall find the records of its literature and its art, and the remains of its every-day appliances of life, all partaking of some common character or sentiment. Acting on this notion, the manufacturers of France make it their business to discern accurately the characteristics of the under-current of feeling to which fashion and its changes are supposed to be due; and, by this means, to keep pace with people's inclinations, and even to anticipate them. 'We know,' said one of the Lyonesse manufacturers to me, 'that when the fashion of this year shall have run its course, every one will have a longing for something new; yet not absolutely new, but something to which the present mode naturally tends. That something, which, in the world of fashion, is only an indefinite sentiment—in fact, a mere predisposition—we endeavor to render palpable, to give it a strongly pronounced character, and assign it a name. Therefore it is that with us fashion is so paramount: the objects of industry presented at the commencement of a season chime in with the predispositions of society.'"

† The purchases consisted of articles employed in educational purposes in the Ecole des Beaux-Arts in Paris, and the Schools of Design in Munich, Florence, and Venice, and of articles selected from the French Exposition of 1844.

the constitution and management of the School of Design." This Committee, after examining the school, and gathering the evidence of manufacturers and artists, submitted a report, in which the Committee conclude:—"From a general review of the evidence, it is clear that the schools, though far from having attained the degree of perfection of which they appear capable, are producing beneficial effects, and may in due time be expected, with energetic support and under judicious management, to realize the anticipations with which they have been founded. . . . Large as the field of usefulness appeared when these schools were established, it has been found by experience to be very much larger than was anticipated. As the managers of the schools have proceeded, they have found the work grow under their hands. For the teaching of ornamental art necessarily presupposed the students having attained to a certain degree of proficiency in elementary studies; and this proficiency few if any were found to have acquired; so that it has been necessary to impart it at the beginning of each man's education. The demand for such teaching has been so great in proportion to the means which the schools possess of supplying it, that they have of necessity assumed more of the character of elementary institutions than was originally expected. The importance of this sound elementary grounding has not always been comprehended, and too great anxiety has been shown in some cases to reap premature fruits from the schools; but the Committee believe that what has been done was both necessary and important, and that, under the circumstances of the case, the managers have been right in endeavoring to raise the taste of the great mass of artisans, rather than by special efforts to force on a few eminent designers."

These views are sustained by the evidence of manufacturers and practical designers, published with the Report. Over 15,000 students, up to 1849, had attended the schools, and a large proportion of them were connected with existing establishments, and have had a marked effect on the taste of the country, both in directly training designers, improving the skill of under-drawers and fillers-up, and creating a demand for an improved domestic fabric, over the foreign. An indirect advantage accrued from the visits made by the masters and teachers to the schools and manufactories of Paris, in consequence of which the superior training and workmanship of the latter was seen and felt, and a higher standard of possible attainment set up. The methods of instruction, although open to criticism, were found in the main to be in harmony with similar schools abroad—and the shortcomings of the schools were to be attributed to the narrow field which they occupied, to the low appreciation in which the culture which they afford is held by the public in general, and by manufacturers in particular—and that the public interests required an extension of the special means of instruction, and the rapid and universal improvement of the popular taste of art and artistic production.

At the close of this period (which ushered in the first International Exhibition at London in 1851 under the auspices of the Society of Arts and on the suggestion of Prince Albert), there were nineteen Schools of Art in the provinces which received direct parliamentary grants for their support, which, after 1848, were placed in the hands of local committees, and which, by the action of the government in 1852, were placed under the supervision of the Department of Practical Art, and in 1853, of the Department of Science and Art.

DEPARTMENT OF PRACTICAL ART.

On the 29th of January, 1852, the Lords Committee of the Privy Council for Trade, by whom the Schools of Design were administered, addressed a note to the Lords Commissioners of the Treasury, to this effect: "That while in many respects there was reason to be satisfied with the progress of the schools, and the influence they had exerted on ornamental art in the kingdom, they believed there were serious defects in the present management, which greatly impair their efficiency, and tend to result in their disorganization. With this view they proposed to create a Department in the Board of Trade to be called the Department of Practical Art, and to consist of two officers to be intrusted with the management of the Schools of Design, under their present direction, and to be assisted by the present Secretary of the Schools of Design. They proposed that one of these officers should give his whole time to the business of the Department, and be responsible for its proper management, and that the other officer should be an artist of high professional character, whose advice and assistance would be indispensable, but who could not give up his whole time to the business." On this general plan of administration the new Department was organized in 1852, and made a Report in 1853, when a new organization was instituted.

DEPARTMENT OF SCIENCE.

The science schools and classes, which now exist in more than five hundred places in the United Kingdom, have been brought into existence chiefly by the agency of the Science and Art Department, a branch of the Education Department of the Committee of Council, under the direction of the Lord President of the Council, assisted by the Vice-President of the Committee on Education.

The origin of the science division of this department may be said to date from the year 1852, when the subject of giving encouragement to the advancement of practical science was mentioned in the following words, by her Majesty, in her speech from the throne, on the 10th November, 1852, in opening the session of Parliament:—"The advancement of the fine arts and of practical science will be readily recognized by you as worthy of the attention of a great and enlightened nation. I have directed that a comprehensive scheme shall be laid before you, having in view the promotion of these objects, towards which I invite your aid and coöperation."

This scheme was presented in the Second Report of the Commissioners of the Exhibition of 1851, composed of thirty members eminent in science, art, and public affairs in the kingdom, with Prince Albert as chairman. This remarkable document, in the light which the Great Exhibition had thrown on the strong and the weak points of the industry of Great Britain, as compared with the same condition in other countries, especially in France and Germany, after setting forth the efforts made by individuals, societies, and the government, for the promotion of Science and Art, as the surest tests of the advancement of a nation in the scale of civilization and general prosperity, pointed out at the same time, the want of system in the application of these forces to produce the beneficial effects which ought to be realized, especially in the field of artistic design and perfected skill in her manufactures. To this end the Commissioners recommended a union of all the institutions chartered and aided by the government for the promotion of Science and Art, under one official administration, so far as productive industry was concerned.

In order to carry out this proposal, the Board of Trade, in a letter addressed to the Treasury, and signed by Mr. Cardwell, on the 16th March, 1853, suggested the formation of a Department of Science, similar to the one already existing under that Board for the encouragement of practical art.

These two branches were to be formed into one, the motive power to be local and voluntary, and mainly self-supporting. This letter further advised the formation of a metropolitan establishment for the collection of illustrations, models, &c., of both science and art, and of a science school of a very high class, where pupils should complete their training, and from which information

might be circulated to the provincial schools. The Government School of Mines and of Science applied to the Arts was to discharge the functions of this Metropolitan School of Science, and accordingly, with several other institutions, namely, the Museum of Practical Geology, the Geological Survey, the Museum of Irish Industry, the Royal Dublin Society, and, later, the Science and Art Museum, Edinburgh, was proposed to be placed under this new department.

Her Majesty's Treasury approved of this proposal, laying particular stress on the idea that the best method of encouraging local institutions would be attained by the creation of a metropolitan school for science; and, accordingly, the Board of Trade Department of Science and Art, as it was to be called, came into existence.

During the first six years, that is, from 1853 to 1859, very little was done for the promotion of science, the title of Science and Art Department being almost a misnomer. A few experiments were tried, and offers held out to localities to take up the subject of science instruction, but only eleven places in the United Kingdom responded. These were, Aberdeen, Birmingham, Leeds, Newcastle, Poplar (Green's Sailors' Home), Stoke, St. Thomas' Charterhouse, Truro, Wigan, and Wandsworth. The attempts at Leeds, Newcastle, Stoke, Truro, and Wandsworth were, however, soon given up, and the want of success of the plans pursued may be judged of from the fact that the aid from the Department to all the science classes, for the six years, amounted to but £898, the great difficulty in all cases being to obtain any fair amount of local interest and pecuniary support, without which, at that time, it was not considered desirable to grant State aid.

In the year 1857, a Treasury Commission, composed of Lord Granville, Sir S. Northcote, and Sir C. Trevelyan, recommended that the Department of Science and Art should be transferred from the Board of Trade, and placed under the Lord President of the Council, assisted by a vice-president of the Committee of Council on Education, as a branch, though distinct from the Department for Primary Education.

It may, therefore, be said that, up to the year 1859, there existed no general system of aid to science instruction which might be taken advantage of by any locality for its artisan population. In that year the minute of the 2d June was passed by Lord Salisbury and Mr. C. B. Adderley, to give aid in obtaining instruction in the following subjects, viz.:—

1. Practical and descriptive geometry, with mechanical and machine drawing, and building construction. 2. Physics. 3. Chemistry. 4. Geology, mineralogy (applied to mining). 5. Natural history.

By this minute, payments were to be made to teachers on certificate allowance, and also on results, but in all cases the local managers were to guarantee for the support of the school, from fees or local funds, a sum at least equal to the government grants.

This last condition would have rendered the spread of science schools very slow, if not altogether impossible, but it was never imposed. It was argued, and no doubt with great truth, that, when persons desire a thing, they are willing to pay for it, and the amount of their liberality will be in proportion to the desire they have for attaining the object; thus, if a locality could not meet the State half-way in the cost of a science school, no doubt the demand for the school and the desire to create it were not very great. It is, however, clear that the more the school is really required, the greater is the apathy frequently displayed concerning it, and that consequently this is a reason, not for withdrawing, but for increasing the State aid.

In March, 1860, the first Science Directory, containing all the regulations on which aid to science instruction was to be granted, was issued, and the condition concerning local subscriptions was withdrawn, though the importance of all students paying fees, and as large fees as can be possibly obtained, has since been strongly urged. The real cause of the great success of the present plan, which, with various modifications in detail, has been in operation since 1860, is that, without irksome conditions, offers have been held out to enterprising teachers to form classes. The plans, from 1853 to 1860, all seemed intended, as it were, to awaken the locality to a sense of its duties and responsibilities to perform the task of educating its artisan classes, not only without profit to itself, but at a sacrifice of both time and money. The new plan held out offers

to teachers. It said, "If you will qualify yourselves to teach, passing such and such an examination, the State will remunerate you for every artisan you can manage to get hold of, and induce to be taught; the amount of the remuneration to be in proportion to the amount of instruction imparted; or, if the teaching is deficient, and brings forth no fruit at the annual examination, no payment is to be made." No arrangement could be more satisfactory from a tax-payer's point of view. The country desired science instruction to its artisans, and it obtained it at a first cost, without any costly machinery or establishment. All the risk of success, the chief work of organizing the schools and getting the pupils together, fell mainly upon the teachers, whose pecuniary interest it was to make them answer. Consequently the scheme became a sound commercial undertaking, in which the community, under every condition, was a gainer.

It must be considered also that this system provided a means of educating teachers, somewhat slow at first, though probably as fast as was then required, and that, too, at no cost to the State, such as an outlay on science-training colleges would have involved. Pupils of superior ability, after prosecuting their studies for several years in a science class, have become most successful teachers.

As might be supposed, in the early years, this system grew but slowly, owing to the apathy of districts and the scarcity of teachers. A uniform and steady increase, however, was manifested from the first, and of late the development of the scheme has been most rapid, as may be judged from the following table:

Year.	No. of persons under instruction.	Number of individuals examined.	No. of teachers paid.	Amount paid to teachers.
1861	1,330	650	26	£1,298
1862	2,543	1,239	51	2,666
1863	3,111	1,581	52	3,240
1864	4,666	2,070	70	3,076
1865	5,479	2,383	92	3,500
1866	6,835	2,980	123	5,002
1867	10,230	4,520	194	7,976
1868	15,010	7,161	285	12,725
1869	21,500	12,988	460	17,000
1870	30,000	15,000	957	19,000

In the year 1862, eight (afterwards increased to nine) exhibitions to the Royal School of Mines were established; and, in 1865, ten (afterwards reduced to nine) more to the newly-created Royal College of Science in Dublin.

Total expenditure in 1869-70, for general management, 9,472*l.*; for South Kensington, 86,728*l.*; for Schools in connection, 82,793*l.*, including 10,692*l.* for London School of Mines; for Edinburgh Museum, 7,250*l.*; for Royal Dublin Society, 8,564*l.*; for Dublin Royal College of Science, 6,692*l.*; Geological Survey, 18,791*l.*; other objects, 800*l.* Total, 220,344*l.*

Total Expenditures from 1853 to 1870 for Science and Art.

<i>Schools—Science and Art,</i>	£373,075
Inspection and Examination,.....	51,884
Prizes, Instruments, &c.,.....	26,289
Traveling Expenses,.....	38,763
<i>South Kensington Museum.</i>	
Buildings,.....	231,740
Works and repairs, &c.,.....	93,991
Furniture,.....	19,792
Fires and Gas,.....	57,611
Police Attendance,.....	30,276
Salaries,.....	116,736
Care of Grounds, &c.,.....	5,990
Examples and Books,.....	181,713
Purchases for Museums and Libraries,.....	92,483
General Management,.....	92,094
Total (1853 to 1870),.....	£1,492,034

SCIENCE AND ART DEPARTMENT,

AND THE SOUTH KENSINGTON MUSEUM.

We propose to present the design and development of the Science and Art Department in copious extracts from a series of Introductory Addresses, prepared and delivered in the autumn of 1857, for the express purpose of commending the special object of each portion of this great national movement and institution to the attention and coöperation of the people of Great Britain.

FUNCTIONS OF THE SCIENCE AND ART DEPARTMENT.*

The Science and Art Department is rather a consolidation of institutions, most of which have been long established, than the creation of any new ones. The oldest institution connected with the Department is the Royal Dublin Society, which as early as 1800 received an annual public grant of 15,500*l.*, a sum it disbursed without being subject to much parliamentary control. The School of Mines, Geological Museum in Jermyn Street, and Geological Survey, were in process of organization from 1837 to 1851, and were placed under the Chief Commissioner of Public Works. The Industrial Museum of Ireland owes its origin to Sir Robert Peel in 1845, and was also subject to the Chief Commissioner of Works, whilst the School of Design, which is the parent of the present Schools of Art located in all parts of the United Kingdom, and supported mainly by local authority and action, was founded in 1837 by Mr. Poulett Thompson, afterwards Lord Sydenham, and was subject to the authority of the Board of Trade.

All these institutions had in view the promotion of scientific and artistic knowledge of an industrial tendency at the expense of the State, but they acted in different ways, independently of each other, and were subject to different kinds of ministerial responsibility.

After the Exhibition of 1851, public opinion unanimously demanded that the State should give more systematic assistance to the scientific and artistic education of the people than it had hitherto done; and it was an obvious process, and in accordance with the working of institutions in this country, rather to improve and consolidate what existed already than to create a new institution.

Accordingly, in 1852, whilst Mr. Cardwell was President of the Board of Trade, the Royal Dublin Society, the Mining Museum and School in Jermyn Street, the Industrial Museums of Ireland and Scotland, with the Department of Practical Art, were united to form the Department of Science and Art under a single parliamentary authority, and were required to publish an annual statement of the results of their working.

The Science and Art Department now constitutes the division of the Committee of Council on Education, charged with the duty of offering to the public increased means for promoting secondary or adult education. All the functions attaching to primary education remain as a separate division of the Committee of Council, and are carried on at Whitehall. The recent transfer of the Science

* An Address on the Functions of the Science and Art Department. By Henry Cole, Secretary and Superintendent. Delivered Nov. 16, 1857.

and Art Department from the Board of Trade has not affected them, except to enable the President and Vice-President to render the working of any points of contact between primary and secondary education harmonious and consistent.

The teaching of the applied sciences—chemistry, physics, natural history, mechanics, navigation, and the fine arts, taking drawing as an indispensable beginning—constitutes the precise object of secondary education, developed in various ways by means of museums, schools, public examinations, payments for results, and the preparation of examples. Whatever advantages the Department is enabled to offer to the public may be obtained without requiring any denominational test, which the primary division of the Education Board at the present time demands. Except in the case of the public museums, which the public enter without payment at certain times, the aid tendered by the Department can only be obtained by a voluntary coöperation on the part of the public, and moderate payments, varying according to the means of the applicants for instruction, afford the test that the assistance sought is really valued. To obtain the assistance of the Department in establishing schools, there must be subscriptions from the benevolent to provide a capital for starting—the fees of students provide in great measure the current expenses and a partial payment to the teachers, whilst the Department comes in aid in various ways in paying for the instruction itself. Under this system all classes are enabled to take their proper share in it, and equal opportunities are afforded to the whole people for developing any talents they may be endowed with. The work thus done is mainly done by the public itself on a self-supporting basis as far as possible, whilst the State avoids the error of continental systems, of taking the principal and dominant part in Secondary Education.

No Danger of Over-educating.

It has been said, and particularly in reference to drawing, that the State is instructing people beyond their stations. I will not defend drawing, the necessity for which may be left to be dealt with in Mr. Burchett's lecture, except to say that Adam Smith half a century since observed, that "There is scarce a common trade which does not afford some opportunities of applying to it the principles of geometry and mechanics, and which would not therefore gradually exercise and improve the common people in those principles, the necessary introduction to the most sublime as well as to the most useful sciences. The public can encourage the acquisition of those most essential parts of education by giving small premiums and little badges of distinction to the children of the common people who excel in them." I will, however, answer the general argument against the over-education of the poor, by calling as my witness Archbishop Cranmer. It was proposed three centuries ago to admit to Canterbury Grammar School none but the sons of gentlemen; "Whereunto," as Strype in his Memorials relates, "the Most Reverend Father the Archbishop, being of a contrary mind, said, that he thought it not indifferent so to order the matter; 'for,' said he, 'poor men's children are many times endowed with more singular gifts of nature, which are also the gifts of God, as with eloquence, memory, apt pronunciation, sobriety, and such like, and also commonly more apt to apply their study than is the gentleman's son, delicately educated.' Hereunto it was on the other part replied, 'that it was meet for the ploughman's son to go to plough, and the artificer's son to apply the trade of his parent's vocation; and the gentleman's children are meet to have the knowledge of government and rule in the Commonwealth. For we have,' said they, 'as much need of ploughmen as any other State; and all sorts of men may not go to school.' 'I grant,' replied the Archbishop, 'much of your meaning herein as needful in a Commonwealth; but yet utterly to exclude the ploughman's son and the poor man's son from the benefits of learning, as though they were unworthy to have the gifts of the Holy Ghost bestowed upon them as well as upon others, is as much as to say as that Almighty God should not be at liberty to bestow His great gifts of grace upon any person, nor nowhere else, but as we and other men shall appoint them to be employed, according to our fancy, and not according to His most godly will and pleasure, Who giveth His gifts, both of learning, and other perfections in all sciences, unto all kinds and states of people indifferently.' * * * * *

'The poor man's son by painstaking will for the most part be learned, when

the gentleman's son will not take the pains to get it. And we are taught by the Scriptures that Almighty God raiseth up from the dunghill, and setteth him in high authority. And whensoever it pleaseth Him of His divine providence, He deposeth princes unto a right humble and poor estate. Wherefore if the gentleman's son be apt to learning, let him be admitted; if not apt, let the poor man's child that is apt enter his room."

Some pains have been bestowed to take care that the facilities in obtaining increased knowledge in science and art offered by the State shall not weaken or supersede individual exertions, but, on the contrary, aid and stimulate them by doing only those things which must either be done by some central authority or would otherwise be left undone. The argument is still held, but with less pertinacity than heretofore—the world becoming gradually more anxious to get at the great result than to quarrel about the means—that the State ought to abstain from all interference whatever in public education. One ground is that every thing should be left as much as possible to the *laissez faire* principle, and another, that whatever the State undertakes it must necessarily do less well than the individual could do it. Both these positions, true as broad principles, have in respect of public education been so unanswerably controverted by the first and most liberal of modern English writers on *Political Economy*, John Stuart Mill, that it is only necessary to refer to his work, where he proves that education is one of those things which it is admissible in principle that a Government should provide for the people, and that help in education is help towards doing without help, and is favorable to a spirit of independence.

Examples of the Utility of State Interposition.

Passing from the question of general education to the specific action of the Department, it will be right to give some instances of its functions which could not be carried out by any private agency. Neither Navigation Schools nor Schools of Art, in the present state of public intelligence, could well exist without the assistance that the State affords to them. The collecting of casts and examples of art from the national museums of other countries could only be systematically carried on by a Government agency. Already the French Government have permitted electrotypes and casts to be taken of the finest original works in the Louvre, Hotel de Cluny, and Musée d'Artillerie, at Paris, and these repetitions may be seen in the Museum. Arrangements have been made to obtain similar privileges in Dresden, Berlin, Frankfort, Vienna, &c. Thus in a few years copies taken by means of electricity and photography of the great Art-treasures in Europe will be collected for the benefit of this country; and, by a self-acting process be distributed as prizes to local museums and schools, and thus will lay the foundations for the establishment of local museums of art, wherever the people themselves may make the necessary arrangements for housing and preserving them. Another instance of the necessity for a central action, which may be open to public criticism, and be above the suspicion of partiality in administration, is shown by the establishment of the Educational Museum. This Museum is for the most part the assemblage of voluntary offerings of books, objects, and appliances for aiding education produced by different agencies, all competitors with one another. The producers of educational books and apparatus here willingly submit in competition to the public the publications they have issued. The public here may consult and compare together the different models of schools recommended by the National Society, the Home and Colonial Society, the Homerton College, and others. The Society of Arts, at the instigation of Mr. Harry Chester, originated the Educational Museum, and devoted several hundred pounds to its maintenance for a few months; but the loss arising from this useful enterprise proved that no private agency could maintain an Educational Museum. Whilst, for the benefit of general literature, the copyright law obliges the publisher to send to the British Museum Library a copy of every work that he issues, the Educational Museum accomplishes for national education a similar object almost wholly by the voluntary contributions of producers. The State provides the house-room and custodyship, whilst the public themselves supply the contents.

Importance of Science to the Industrial Arts.

A somewhat narrow defence of State interference in promoting Science and Art may be found in the influences which they exercise upon the material prosperity of the country. It seems almost a truism to say that the successful results of all human labor depend upon the right application of the laws of science, which are not the less necessary because they may be unknown. In the early life of a people those laws are employed empirically. The savages of Lahore or Delhi have been great adepts in the application of the laws of color to manufactures, and have had no schools of art. The hides of oxen, in all quarters of the globe, were made into leather by means of scientific principles, long before chemistry had been matured into a science. But in these days of the scientific discovery of Nature's laws, the value of production, in all its infinite varieties, is materially affected by the right application of those laws; and such is especially the case among the more modern nations. Follow the history of the sheep, for example, in all its details, as shown in the Animal Museum. Liebig has taught us how essential to success are the proper relations between the earth and the food of the sheep, and the mutual reaction of each of them. The Duke of Richmond and Mr. Jonas Webb know well enough how to apply scientific laws that influence the production in the same animal of the greatest quantity of the best wool for manufactures, and of the largest amount of mutton for food. In every stage of the preparation of wool, chemistry and mechanics are brought to bear. Since the beginning of the Patent Laws in this country up to 1852, when the reform took place, upwards of 370 patents had been taken out bearing upon the preparation and uses of wool; and between 1852 and 1855, 142 patents have been taken out. These facts only indicate partially the amount of mechanical science applied. The combing, the carding, the drying, the felting, the spinning and weaving, are all good or bad in proportion as scientific laws are obeyed or not. And then, whether or not the garment, the hangings, the tapestry, and the carpet gratify the taste, is altogether dependent on the application of the laws which regulate beauty. To offer to every one in this kingdom the elementary knowledge whereby his labor may have the best chances of fruitful and profitable development, appears to be the aim, in its broadest sense, of all public expenditure on behalf of Science and Art.

Public Grants to Science and Art.

The total national expenditure for promoting Public Education and Science and Art in every way through the primary division of the Education Board, the British Museum, National Gallery, grants to Universities, and grant to this Department, may be taken, at the present time, to be in round numbers a million of pounds sterling,* which, divided among our population, say, of 30,000,000, makes the contribution of each to average eight pence per head per annum. It is difficult to calculate the annual value of the production of this country; but I think, seeing that our imports and exports last year amounted to 288,545,680*l.*, it is not an over-estimate to place it as being worth 400,000,000*l.* a year. The State contribution towards Education, Science, and Art, which vitally influences this enormous amount, bears therefore the proportion of the outlay of one pound on behalf of Education, Science and Art for every 400*l.* of production, or one penny in every 1*l.* 13*s.* 4*d.* The annual Parliamentary vote for the Science and Art Department only, being under 75,000*l.*, is less than a five-thousandth part of the estimated annual production, and is about a thousandth part of the annual taxation of the country.

The Education Boards in England and Ireland, the Schools of Design, and the greater number of the grants for promoting Science and Art, have all arisen since the passing of the Reform Bill in 1830. It was rather the influence of the Crown that created the Royal Academy in 1768 than any public demand. And so feeble was the expression of public opinion through the Commons representatives in 1810 on the subject of Public Galleries, even if it existed at all, that the then Chancellor of the Exchequer is said to have refused to accept the Dulwich Gallery of Pictures as a gift to the nation, on the condition of housing

* Increased in 1868-9 to £1,614,433.

and taking care of the Pictures. Last year the Government, through Lord Stanley of Alderley, as President of the Board of Trade, built a structure on their own responsibility to secure Mr. Sheepshanks' munificent gift of pictures, valued at 60,000*l.*, and Parliament afterwards cheerfully voted a sum, under 5,000*l.*, requisite for its cost. In half a century such has been the change of public opinion in respect of National Galleries of Pictures.

Art and Art-Teaching.

Inheriting the old Schools of Design, the Department, on behalf of Art, exercises a more direct and positive action than for Science; but even in Art every one may take any of the advantages offered, either in recommendations to masterships or prizes, whenever he may have acquired the requisite ability. It is not essential that he should have been a student in any school of art. At present it seems necessary to have a Central Training School of Art for masters. There are no symptoms whatever that, if this function were not undertaken by the State, it would be performed at all; and certainly the provision of competent teachers is a first necessity to promote knowledge. Any one, however, can offer himself for a certificate of competency, although he has not been trained in the school. But the feebleness of voluntary efforts is shown in the fact that, since its establishment five years ago, only one person, not a student, has offered himself for such examination and succeeded at once in obtaining an Art master's certificate.

Science Schools.

The establishment of a Local School of Science, Navigation, or of Art, originates entirely with the locality that wants it, and before the Department acts, certain things must be done, suitable premises must be found, and a certain constituency registered as being willing to be taught for a given time. The Department then grants partial aid in furnishing the necessary examples, recommends a master, who is appointed by the local committee if approved, inspects the working, tests the results by examination, and awards prizes. This partnership having been thus matured, all the advantages of the Central Museum and Library, and any experience the Department may have to offer, are placed at the disposal of every school, to use as it finds occasion.

The number of Navigation or Science schools of all kinds at the present time in connection with the Department is twenty-two. The number of Schools of Art throughout the United Kingdom at the present time is sixty-nine; and, according to the last returns, they were the means of educating upwards of 35,000 students in drawing and painting. These numbers include children in poor schools under instruction in drawing. Since the Schools of Design were expanded into Schools of Art, and made to embrace the teaching of drawing in public schools, the progress has been as follows:—In 1851, 3,296 students learning drawing cost the State 3*l.* 2*s.* 4*d.* each. In 1856, 35,000 students cost the State about 15*s.* each, as nearly as can be estimated.

It is not made necessary to create separate and special schools for teaching elementary science and drawing. Rules are established whereby they may be introduced into primary and existing public schools. Ten or fewer primary schools, offering in the aggregate 500 children for instruction in drawing, may obtain the services of a certificated teacher of Art, and the aid of the Department. This is a temporary measure until the general schoolmasters have acquired the power of teaching drawing concurrently with writing. The Primary Division of the Education Board will add eight pounds annually to the schoolmaster's certificate allowance when he is able to do this. It will be a great step when one town can show that drawing is taught in all its public schools; the schoolmasters teaching the elements, and the art-master of the district teaching an advanced class and inspecting the whole. Besides this direct action, the Department further aids by examination and prizes. There are three grades of examinations, and every one, however taught, is free to offer himself or herself for examination and take the prize attached to the grade. These prizes begin with a pair of compasses, and terminate with ten pounds' worth of works of art given to the School of Art which produces the student who successfully competes with all the other students of the whole schools.

Improved Diagrams and Examples.

The suggestion of improved diagrams and examples is another function of the Department. It is not too much to say, that the publication of Diagrams like Professor Henslow's for Botany, Mr. Patterson's for Zoölogy, and Mr. Marshall's for Physiology, all suggested by the Department, but published in the ordinary channels of trade, are the best which can be shown in Europe. In the Paris Exhibition there was no parallel exhibition to our own of the aids for teaching Science and Art, and this result is due to the abstinence of the Department from invading the province of the tradesman, which is too common abroad. In the use of these examples by poor schools only, the Department is authorized to grant an aid of about forty per cent. Since this system was instituted in 1852, upwards of 1,500 public schools have been assisted, and all the private schools in the country have had better examples placed before them.

South Kensington Museum.

It has been said that the contents of the Museum here are very heterogeneous, although Science or Art is the basis of all the collections. The remark is just. These collections come together simply because space was provided for their reception. For years they had been for the most part either packed away unseen, or were very inadequately exhibited, and the public deprived of the use of them. The architectural collections belonging to the Department for years were buried in the cellars of Somerset House, and were but most imperfectly shown at Marlborough House. The prints and drawings possessed by the Department had never been seen by the general public. The casts of the Architectural Museum are surely better displayed here than in Cannon Row. The union of these collections, and the addition of the models of St. Paul's and various classical buildings, betoken what an Architectural Museum may become, if the individuals and the State will act together. Every foreigner who has seen this commencement sees in it the germ of the finest Architectural Museum in Europe, if the public support the attempt. But for this iron shed, a Patent Museum might have remained a theory. The educational collections were packed away for three years unused, awaiting only house-room to show them. Since the Exhibition of 1851, the Commissioners had been compelled to store away the Trade collections which either are so attractive here, or have been usefully distributed to local museums. The Iron Museum is only to be regarded as a temporary refuge for destitute collections.

Besides proving the public value of these collections, the provision of space has signally demonstrated the willingness of the public to coöperate with the State when space is found. The Museum, covering above an acre, is already more than filled, although every division of it is far from complete. But even the present collections, crude and imperfect as they are, have sufficiently attracted public attention, to confirm their public utility; and it may be expected that the public will not grudge that proper house-room for their more systematic arrangement and development should be provided. It was prudent at least to try the experiment, which has been fully justified by success. Distinct buildings of a permanent and suitable character are wanted for the Patent Collection; for the products of the Animal Kingdom, which logically seems to be an appendix to the national collection of the animals in the British Museum; and for the collections of Education and of Art, as well architectural as pictorial, sculptural, and decorative. For each of these collections prudence would provide very ample space, as they must continue to grow as long as they exist. Models of patented inventions, specimens of animal produce, architectural casts, objects of ornamental art, and sculpture, can not be packed as closely as books or prints in a library. They require to be well seen in order to make proper use of them; and it will here be a canon for future management that every thing shall be seen and be made as intelligible as possible by descriptive labels. Other collections may attract the learned to explore them, but these will be arranged so clearly that they may woo the ignorant to examine them. This Museum will be like a book with its pages always open, and not shut. It already shows something like the intention which it is proposed to carry out. Visitors may see in the system of labeling, especially in the Animal Collection, how instructive every thing may be made. What would be otherwise passed

unheeded or despised thus becomes a subject of interest. Although ample catalogues and guides are prepared and are preparing, it will not be necessary for the poor man to buy one, to understand what he is looking at.

Every facility is afforded to copy and study in the Museum. As many as twenty-five persons in a day, interested in education, have attended to consult the educational collections. At a low rate of fee, photographs may be ordered officially, as well as casts or molds of any object of ornamental art.

As future lectures will explain each collection and its objects in detail, I pass on with the single remark that these collections are for the most part of such a character that, unless they were supported or materially assisted by public taxation, they could hardly exist. This observation applies particularly to the models of Patented Inventions, Education, and Architectural and Decorative Art. Even with Architecture, it may be doubted if any private association could permanently maintain a comprehensive collection of a severe professional character, where the specimens were preserved with all their defects, and not restored or decorated. The mere space that an architectural collection illustrating all styles would fill, would seem to be beyond the success of any private voluntary efforts to provide and maintain.

The public attendance at this Museum thus far has been very remarkable. Since the Museum was opened in the middle of last June, the average numbers attending monthly have been upwards of forty-four thousand. At Marlborough House during the year 1855, being the last before the removal, the average numbers attending monthly were only seven thousand eight hundred. Should the rate of the present numbers be maintained, they will be above half a million in the year,* and exceed the numbers who visited the British Museum in 1854 and 1855, as well as the visitors to the National Gallery, both at Charing Cross and Marlborough House, which together, in 1856, were only 435,990.

Unlike any other public museum, this is open every day, on three days and two evenings, which gives five separate times of admission, making in summer an aggregate of thirty hours weekly free to every one. On the other three days and one evening it is free to students whose studies would be prevented by crowds of visitors; but, on these occasions, the public is not turned away, as a fee of sixpence gives every one the right of admission as a student; at the National Gallery and British Museum the public are excluded on students' or private days. Here it can not be said there are any private days.

For the first time, the experiment has been tried of opening a public museum in the evening, to ascertain practically what hours are most convenient to the working classes. It is much less for the rich that the State should provide public galleries of paintings and objects of art and science, than for those classes who would be absolutely destitute of the enjoyment of them, unless they were provided by the State. Although the Museum is open free for an average of twenty-one hours weekly in the day-time, and only for six hours in the evening, the visitors in the evening exceed those of the day by more than one-fourth. The numbers in the day-time, up to the end of October, have been 85,000, whilst those in the evening have been 110,000, or nearly five times the number that might have been expected. An observation of the evening visitors clearly proves that a large proportion of them are not of a class who can frequent public museums in the day-time, excepting at Christmas and Easter holidays. On Monday nights especially, great numbers are strictly of the working classes, to whom a day's visit would entail the loss of a day's wages, unless they happened to be out of work. There are not many of us who would visit public museums, if every visit cost us a day's earnings.

In the evening, the working man comes to this Museum from his one or two dimly-lighted, cheerless dwelling-rooms, in his fustian jacket, with his shirt-collars a little trimmed up, accompanied by his three, and fours, and fives of little fustian jackets, a wife, in her best bonnet, and a baby, of course, under her shawl. The looks of surprise and pleasure of the whole party when they first observe the brilliant lighting inside the Museum, show what a new, acceptable, and wholesome excitement this evening entertainment affords to all of them. Perhaps the evening opening of Public Museums may furnish a power-

* Increased in 1860 to 1,300,000.

ful antidote to the gin palace. It is hardly necessary to say, since we have had above 110,000 evening visitors, not a single case of misconduct has occurred.

The Museum is open for the three first evenings a week to the public, but a rule has been made which enables any private society promoting science and art to have the Museum or the Lecture Theatre lighted up for their use upon paying the expenses of lighting and attendants on those nights when the Museum is closed.

The perfect success of these evening meetings in the Museum is one of the most gratifying results of the new arrangements, and I doubt if the most vigorous opponent of State assistance would venture to denounce them to an audience of working men as not worth the cost.

National Functions.

But it is not only as a metropolitan institution that this Museum is to be looked at. Its destiny is rather to become the central storehouse or treasury of Science and Art for the use of the whole kingdom. As soon as arrangements are made, it is proposed that any object that can properly be circulated to localities, should be sent upon a demand being made by the local authorities. The principle is already fully at work, and its extension to meet the public wants depends altogether upon the means which the public may induce Parliament to furnish. It may be hoped by this principle of circulation to stimulate localities to establish museums and libraries for themselves, or at least to provide proper accommodation to receive specimens lent for exhibition.

The number of works of the highest art is limited, and it can not be expected that every local gallery can possess many of them, but the mode of circulation alluded to would afford to every local gallery the qualification of having each some in turn. The circulation of pictures has yet to be commenced, but other works of art have been sent round to local Schools of Art for some time past. A collection of examples from the Museum of Ornamental Art, aided by loans of Sèvres porcelain from Her Majesty's collection, is now being circulated to every School of Art, where it remains for exhibition for a few weeks. Where the local appreciation of its value is lively, and local proprietors of works of art assist by loans, the exhibition becomes a source of profit to the school. Hanley in the Potteries, for instance, by means of the Department's exhibition, coupled with Mr. J. L. Ricardo's pictures, attracted above 20,500 visitors, and secured about 200% profit, which was applied to the benefit of the school. At Birmingham the number of visitors was 12,711, whilst the total number of visits which have been made to the Traveling Museum, since the plan was commenced, has been above 135,000.

The Library of Art at South Kensington is now also made the circulating library for the whole of the United Kingdom, and every School of Art has the privilege of borrowing the most valuable books, prints, &c., upon the single condition of guaranteeing their safe and punctual return.

Individual responsibility in the working of this Department is carried out as far as seems possible. A President in the House of Lords; a Vice-President in the House of Commons, with individual directors, personally responsible, who are appointed over each of the Museums and Schools of Science in London, Dublin, and Scotland. There is an Inspector-General for Science and another for Art, by whose advice the Committee of Council is guided professionally. Subordinate to them, but preserving the principle of individual responsibility, there are a head of the Training School for Art, and separate keepers of the collections of Art and Education. In the relations with local committees, provision is made to insure clear responsibilities and adequate publicity in the proceedings. The masters of the Schools of Navigation and Art and Science are appointed and dismissed by the local committees. There is no divided authority; whilst the Department merely recognizes results, about which there can be no dispute, and rewards them. Publicity is indeed the keystone of the action of this Department; and it can only prosper in proportion as the public is made acquainted with its proceedings and values them. It may be asserted that there is not a single detail in the action of this Department—in its schools, examinations, award of prizes, museums, and libraries—which does not invite the fullest publicity.

INSTRUCTION IN DRAWING.*

Without wishing to attach an undue value to drawing, I believe it likely to exercise a not unimportant part in education in a moral, intellectual, and physical, or at least *manual* point of view; and, if this be the case, it must be evident that it is an important agent in what we agree to consider a matter of vital importance at the present time—the general education of the people.

It is a very common error to regard drawing as an *end* and not as a *means* in education, and this opinion has arisen from the manner in which it has too often been taught in schools, where it has been, perhaps, the most unreal of all the unrealities; a child has been set to copy a drawing or lithograph of, it may be, a picturesque pigsty, or some very dilapidated building, the indefinite and unprecise forms of which become still more vague and characterless in his hands, a few finishing touches from the teacher complete the work which has occupied much time, cost some money, and not imparted a single idea, or given the germ of any power. And if it be asked, What is the use of learning "this sort of thing?" the answer may safely be, "None at all;" but this is not even teaching *copying*, much more drawing.

Regarded aright, drawing, in general education, is the most potent means for developing the perceptive faculties, teaching the student to see correctly and to understand what he sees. Drawing, if well taught, is the constant practice of the analysis of forms. And by this practice the *eye* is quickened and rendered incomparably more accurate, and as the *eye* is the most open and ready road through which knowledge passes to the mind, the full development of its powers can be a matter of no small importance to all; in this respect, then, as an educator of the *eye*, drawing is a most valuable means, irrespective of any service that the power may be of in itself. But there is another faculty engaged in this study, that one which distinguishes man from the cleverest of the animals—the *hand* is employed, and it also is educated and trained to be more completely under the control of the will than by any other exercise it can be set to; it acquires a delicacy of movement and a refinement of power which no other discipline can impart, and which fits it more completely to perform its varied and delicate functions.

Two faculties, therefore, the perceptive and the reproductive, and those the most in demand and of universal application, are especially developed by education in drawing. The *eye* is taught to *see* all objects more correctly, the *hand* is trained to *do* every thing more precisely.

Drawing, therefore, is a most valuable discipline in early education, if it be viewed merely as a means of development of the faculties, and one equally fitted for all ranks and both sexes, and this must be constantly borne in mind as one of the causes of its utility—that it teaches to *see* and to *do* all things more perfectly; that it is a development of the general intellect of the country in an eminently practical direction.

In the present advanced state of mechanical science, hardly a week passes that the labor of men's hands is not to some extent superseded by machinery, and as this state of things progresses, so must the mind of the people be made to keep in advance of mere mechanical powers, or inevitably sink below them. Man must be the ruling and directing master of machinery, or he will become its slave. Every new invention in mechanics which supersedes the labor of men's hands renders more imperative the cultivation of their intellects, or masses of men will be thrown a mere drug, if one may use such an expression, upon the market of labor; less useful because less certain, and less under control, than their rivals of iron and brass, which know no wants and have no wills. But this very increase of the physical powers of a nation points imperatively to the development of powers which are often dormant in man, and which, admitting of no rivalry in machines, make not only an addition to the resources of the country, but extend the benefits conferred by mechanical science. In a philanthropic point of view, therefore, it is most desirable to extend

* Introductory Address on the Central Training School for Art, by Richard Burchett, Head Master of the South Kensington Training School, London.



the teaching of drawing to the greatest possible extent; and this is not the only value of this education in connexion with mechanical science—by the wide diffusion of mechanical powers, thousands become more interested in their use, and a greater knowledge of them is demanded; now they can only be well used when well understood, and in this drawing will be found a potent auxiliary. In a few years it is probable that a large proportion of our farm labor will be performed by machinery demanding a knowledge of it by those who use it, and freeing a large amount of labor for other channels. Drawing will be of the greatest value, therefore, to all the agricultural population, and it is not too much to say, that the diffusion of this kind of education may tend in no small degree to avert evils in a future day that have heretofore been heavily felt in this country, when mechanical and animal power have been strongly put in opposition.

There can be no doubt, therefore, but that drawing, if properly taught, is a most efficient means of developing the perceptive powers of the mind, and of the greatest use to all, for it may be truly said, that *no one can know forms or objects thoroughly, who can not draw them*, and that no one *does* know any form or object thoroughly until he has drawn it. This assertion *may* be doubted by those who can not draw; it will *never* be by those who can.

In all teaching of drawing, what is the first and greatest difficulty to be overcome? The imperfect power of seeing. The student has to be taught to *see correctly*; in the most advanced stages of instruction in drawing, the eye still lags behind, and a student readily corrects his errors when he is taught to *see* them.

Education in drawing, then, will confer a power of seeing more correctly, of knowing more truly the forms and objects by which we are surrounded or with which we come into occasional contact; it will be a draught from the well of truth, and as we *know* more of the objects which we see before and around us, we shall *love* more; and what can be a more fitting subject for the study of youth, of whatever condition or sex, than one which teaches them to admire and respect the works of the Creator of all things, whether emanating directly from his own hand or manifested through the agency of his creature—their fellow-man? It is, perhaps, impossible to realize the different appearance which the world presents to the educated and the uneducated eye; and yet great as this difference is, every lesson, every attempt to draw will decrease it, and some slight glimpse into this world of glory is afforded for every effort.

But it may be said that however desirable it may be to give this instruction early in life alike to all, it is impossible, from want of time and its interference with other studies which are regarded as more indispensable. But in order that this argument should be valid, it must be proved that instruction in drawing not only interferes with other studies, but that the time it takes from them is absolutely lost to them; but this is not so: on the contrary, instruction in drawing is found to be most helpful in many of the ordinary studies of all schools. What would be thought of a school where the children were not taught to write? And yet what is writing but the drawing of a series of arbitrary signs, and what an amount of time is necessary to draw them well. The art of writing is, in fact, nothing but drawing from memory. To the study of writing, then, the practice of drawing must be very helpful, and experience has shown the truth of this theory. The one or two hours a week devoted to drawing have been found of more advantage to writing than the same time devoted to it; and this may be readily understood on another ground—a child tires by constantly repeating the same letters, his best effort to imitate his copy is most frequently his first in the day's exercise, and he then goes on repeating and aggravating his own errors until they too often culminate in the last line of the copy; but in drawing it is not so, the copying is constant, but the copy is different in every part, the attention is kept alive by the greater care demanded, the faculty of imitation is more rapidly acquired, and by the exercise of this imitative faculty, even the writing lesson is brought much nearer the original copy. Great difficulties had to be encountered in many cases in introducing drawing into National and parochial schools, great complaints made of its interference, &c., yet such a change has been wrought that it is now universally considered an advantage to the other studies of the school: schools which

commenced with classes of twenty or thirty, now number their students by two and three hundred, and drawing is found to be a useful *introduction to the practice of writing*.

But apart from these desirable influences on general education, how important it is that children should acquire early in life the germ of any knowledge which may be of use to them later in their day, that they should both acquire a taste for, and remove some of those obstacles from, those studies to which it may be advantageous, either in youth or manhood, to direct their attention!

What complaint is more constant than that our workmen are uneducated, inferior in this respect to the same class on the continent—and perhaps it is so. But what is the workman's excuse? That he is too old now to go to school, that the hours spared from labor are necessary for repose, that his hands are stiff from toil, and he does not like to be a "child once more."

Remove this plea, therefore—the population of our schools furnish the occupants of our workshops; commence the education in the school, and when the boy leaves it to enter the workshop he will at once feel the value of the little power he possesses; this feeling will induce him to cultivate it; he will attend a school on some of his evenings, and by degrees and through these steps you will obtain a well-educated class of workmen. Is it nothing to have implanted in the mind of the child this desire for future knowledge that operates in furnishing him with intellectual employment and pleasure, joined with profit, in one and the same study? and will this exercise no influence upon the morals?

I advance these reasons, then, as so many pleas for making education in drawing a part of the school course of every child, and I address them to those who interest themselves in general education alone, and view it only as it affects the moral and material interests of the people.

It may be said that much that I have stated does not apply to females, and that in girls' schools drawing can exercise but little influence on the occupations of their after life; but this is much less true than at first may be thought, and setting out all the numerous class of women who live by their labor, and to a large number of whom drawing is as valuable as to any, it will be found to confer advantages upon all; habits of order and precision will be acquired, and the girl who has been taught drawing in her school will have one element in her character towards forming a good housekeeper.

There is one other point on which I wish to say a few words—the value of drawing as an universal language. How impossible it is often found to convey any clear impression to the mind of another by a merely verbal description of an object, when in a few minutes a very moderately instructed hand will, by means of a sketch or sketches, convey an accurate and unmistakable idea to the mind of another. Now this is a want which all may feel, and it can only be supplied to the people generally as a portion of ordinary education. The education of an artist is not required for it, any more than that a person should be a master of *penmanship* in order to make his writing intelligible to his fellows; but some amount of drawing power, coupled with that clear idea in the mind of what the object is like, which drawing so materially tends to give, will be sufficient to save much time and many errors, particularly when both the parties understand the language of form.

I have dwelt thus upon the importance of drawing as a part of general education from a conviction that, like the old adage, which says, "If you take care of the pence the pounds will look after themselves," so I believe that if drawing can once be placed in its right position in primary education, that more advanced instruction, whether adapted to the requirements of the artizan and manufacturer or to the more extended desires of the lover of art, will never need advocates or want pupils.

From the first establishment of the Schools of Design their object was not the stimulation of a general love of art amongst the people, nor the furnishing all classes of the community with that kind of instruction in drawing which bore upon their particular trades, but it was avowedly the education of designers for manufactures; and to this end were all the efforts of the authorities and the studies of the schools directed and limited.

But the attempt to establish a School of Design was the first great proof of the necessity of establishing *Schools of Drawing*, and this, with perhaps a soli-

tary exception, they became, that is, *Schools of Drawing, with a limited range of study.*

However, in the fullness of time the conviction of the few, that in order to obtain the realization of the objects of the schools the education should commence earlier and be spread wider, became the opinion of the many; and after the Exhibition of 1851, on the formation of the Department of Practical Art, the Government first proposed to itself the task of diffusing education in drawing and the elementary practice of art as widely as possible amongst the people, and it especially sought to commence in the child the work it hoped to complete in the adult.

The work it undertook was,—To make elementary drawing a part of general education, offering to all some knowledge of the language of form as well as of the language of ideas; to supply to the mechanic and the artisan that kind of drawing power of which he himself felt the need, hoping to induce him to feel the desirability of obtaining still more, and to lead him to become the well instructed producer of the ideas of others; to the art-workman and the public generally it offered a complete education in art, extending its studies over the widest field and endeavoring to make each step in its education complete and thorough, embracing all that could be required in an art education, and including besides the systematic study and practice of ornamental art and of various studies bearing only upon it.

But before it could be possible to diffuse over the country such an education as this, embracing so wide and varied a range of studies, it would be evident that teachers must be found with qualifications different in kind and degree from those usually possessed by ordinary art teachers.

To secure this object the *Training School* was established, in order to *teach as students and train as teachers* those who should thus be enabled to disseminate this widely based and extensive course of education throughout the country; and to an exposition of the course of instruction and methods of study pursued in this school, and to some remarks upon some of its results, it is now my duty to address myself.

Its academic studies, however minutely they may be subdivided, group themselves under three heads, *drawing, painting, and modeling.* The classes of persons which those who are trained in its schools are expected to instruct may be divided into four—School-children—Workmen and mechanics, with a view to their trades, general art students, and those who study ornamental art with a view to becoming designers.

The object of the Training School is to educate students to become masters; for this purpose it selects from amongst the schools connected with the Department of Science and Art, and from other art students who may apply, such as by their previous art acquirements are deemed most likely to fulfill its objects. To enable such to pursue their studies for a sufficient length of time, allowances are granted extending from 5s. to 30s. a week to the students, they being expected to devote thirty-five hours a week to the objects of the school; of this time the principal number devote one-seventh to teaching: the more advanced one-third.

Besides an examination in general knowledge, embracing reading, writing, arithmetic, English history, and one book of Euclid, which every student is expected to pass on or shortly after his admission, the subjects of study in the school are divided into groups, to each of which an examination and a certificate is attached. These examinations consist of written papers on the various subjects connected with the groups, and works executed in the presence of the examiners.

Before any student can be admitted to such examination, he must have produced in the school the works pertaining to such group, which must also be of a thoroughly satisfactory character. Besides this, he teaches under constant inspection, and every month a report is made of the progress of his school and his own efficiency.

This is a brief outline of the student's course. I now come to speak more in detail of the studies through which he passes.

Bearing in mind the importance of teaching drawing to school-children and to mechanics, the first certificate which every student must take before he can

proceed further with his studies, or at least take other certificates, concerns itself especially with the studies which fit him for this duty. He must produce thoroughly satisfactory studies in drawing of ornament, foliage, geometric models, and the figure from the flat, of geometrical, mechanical, architectural, and perspective drawings; solve written papers on geometry, perspective, and color; execute in a given time before the examiners, works in perspective, mechanical, architectural, and model drawing; and he must have satisfactorily taught a parochial school.

The second certificate is for the study of painting, and embraces the practice of painting in oil, tempera, and water-color from ornament and objects of still-life; also the study of ornament, artistic botany, and the practice of elementary design. At the examination the student is required to solve written papers on the history and application of ornament, and to execute a time-sketch from a group of still-life before the examiner. In the second certificate, therefore, it is sought to provide by the systematic study of ornament for the education of the ornamental designer, while the requirements of the general student are not neglected.

The third certificate is attached to the study of the figure, and the examination conducted on a similar plan; the papers being on anatomy.

The fourth and fifth certificates are devoted to modeling; one of ornament, the other figure, the works being similar in character, and the written papers the same as in the second and third certificates.

The sixth group of certificates relate to more advanced technical instruction, including mechanical and architectural drawing, and various applications of art to manufacturing purposes, as painting on porcelain, &c. &c.

This, then, is the course of study, through a part or the whole of which a student in training must pass previous to being recommended for appointment. It remains for me to describe the manner of study.

All art-education divides itself into two groups; that which a student may be taught to *know*, and that which he must be taught to *see*. In the first may be included geometry, perspective, mechanical and architectural drawing, ornament (partially), and anatomy (partially); while the actual imitation of an object or the learning to see would embrace all studies, whether of drawing, painting, or modeling, in which artistic reproduction was sought to be achieved.

In accordance, therefore, with this, the instruction consists of class-teaching by class-lectures with blackboard illustrations, and that careful individual instruction without which all art-education must be merely nominal. The one principle being ever borne in mind that a student should be taught to know *why* he does *what* he does—the examinations being designed to ascertain this.

The means by which the students are trained in teaching remain to be pointed out.

It must be evident that to provide a sufficiently wide field of practice for a large number of students in training, as well as to secure the same kind of art-teaching as that which they would be required to *give* when employed as masters, schools similar in their nature must be attached to the Training School.

These were fortunately provided by the *parochial schools* of London for that class of tuition, and by the establishment in different districts of London by individuals unconnected with the Department, of schools of art, for affording instruction in the evening to adults and others. By this means was the *field for training* provided, not only without cost to the State, but the instruction being paid for at a low rate, the cost of the Training School was reduced.

This, then, is the course of instruction, the method of study, and the means of training adopted with the view of supplying the whole country with teachers, who, trained to commence with the child of the poorest or the more wealthy, when at school, are fitted also to impart to the mechanic and artisan the more special instruction adapted to their wants, and besides this are qualified by a careful course of instruction and training to give that general instruction in the elementary practice of art which it is sought to diffuse as widely as possible amongst the people.

But while dwelling on the results of this school in the training of masters for provincial schools, it is necessary not to forget its action as a school of art for the metropolis. The education which it affords to the student in training is

open to the general public by the payment of fees ranging in amount from 1*l*. to 4*l*. per session of five months. It has also classes for schoolmasters, and affords instruction to the detachment of Royal Engineers employed here.

No question connected with these schools has given rise to more discussion than that, whether design could be taught, should be taught, or was taught in them.

The designs produced in a school should and must be *exercises of the students*, and simply *studies in composition*. They are *exercises in design* to teach the student to *become a designer*, and this object will be much more certainly achieved by a careful and systematic study of ornament and of nature with a *view to ornament*, than by a more confined attention to mechanical necessities. Of one thing we may be sure, that if a student can be made or become a good designer *artistically*, he will find but little difficulty in overcoming the mechanical obstacles.

In one way alone can these schools ever become great schools of ornamental art—it must be by the undertaking of actual work to be done by masters, assisted by students. By such means, the coupling together instruction in art and its practical application, bringing all the studies of the school to bear upon the work in hand, not only may the students become first-rate ornamentists, but the ornamental art of the time become greatly improved, inasmuch as they would carry into their work more artistic feeling and power, and be less strictly confined within the pecuniary limits of profitable labor.

Let the masters of the schools take up the manufactures of their localities, or the practice of ornamental art of the highest class, and let the schools become *ateliers*, artistic workshops as well as schools, employed upon actual works, and meeting all the requirements of such employment, and we shall soon have a body of ornamentists and designers who would be unsurpassed in any country.

I have thus endeavored to place before you a concise statement of the objects and working of the Training School, as they may stimulate education in the elementary practice of Art, both in the provinces and the metropolis, by furnishing well-educated masters for Art Schools, who should embrace within the range of their tuition alike the young and the adult, the humble and the lofty, those who seek instruction only for money profit, and those who love Art from a higher motive; masters for schools which may become the means of diffusing a greater knowledge of and love for Art.

I believe in the desirability of doing this for the advantage of the country merely in a mercantile point of view, and that this object deserves the liberal support of the government and the nation from this cause.

But I believe, also, that the diffusion of Art knowledge and Art power may appeal to national support on other and higher grounds, and that its true value is not to be estimated by *tables* which are supposed to show "The progress of the nation."

To one in whose nature a deep and true love of Art is implanted, (and without this no one can be a true artist,) Art becomes almost a holy thing, something to be dedicated to noble aims, and not to be trailed in the mire and the dirt of mere displays of pomp and vanity; a something that should minister to the pleasures or purposes of the *soul*, and not merely play the agreeable to the senses.

By such an one the extension of these schools is viewed in a different manner; he dwells with hope upon the results they may have upon the general feeling for Art, and the love of its manifestations upon the people of this country. He believes that they are one step in the furtherance of that hope that will arrive at fruition when one of the noblest gifts of God shall be worthily devoted to His service, when the noble deeds and thoughts of the great and good men of all times, all countries, and of all faiths, may find worthy expositors and appreciating audiences; when in this our country, Art, standing noble and aloft before all men, drawing to itself the noblest intellects and the purest feelings, may appeal to all, and in a voice that shall find an universal echo in all hearts, say, it is my mission to speak to your souls through your senses—to cause your hearts to flame or melt, but always to noble ends; and to speak an universal and eloquent language only the more effectively to disseminate great deeds and noble thoughts.

NATIONAL GALLERY OF BRITISH ART.*

The design and execution of this feature of the operations of the Science and Art Department, harmonize so well with our views for a National Gallery at Washington, or a State or Municipal Gallery in any of our chief cities, that we give copious extracts from Mr. Redgrave's Introductory Address.

Mr. Sheepshanks' Gift of Pictures and Drawings.

I am to address you this night on the munificent gift made to the public by Mr. Sheepshanks, of a choice collection of pictures and drawings by British artists; given, to use his own words, "with a view to the establishment of a collection of pictures and other works of art, fully representing British Art, and worthy of national support;" to be placed in a well-lighted and otherwise suitable gallery, and called "the National Gallery of British Art." "And whereas," he recites in the deed of gift, "I conceive that such a collection should be placed in a gallery in an open and airy situation, possessing the quiet necessary to the study and enjoyment of works of art, and free from the inconveniences and dirt of the main thoroughfares of the Metropolis, I consider that such a gallery might be usefully erected at Kensington." And he goes on to add, "in the hope that other proprietors of pictures and other works of art may be induced to further the same object, the said pictures and drawings shall be deposited in such gallery with any other pictures or works of art that may be subsequently placed there by other contributors, as it is not my desire that my collection of pictures and drawings should be kept apart or bear my name as such." Many other points are recited in the deed, which will be referred to in the progress of the address, but at present I would group what I have to say to you under the three principal heads to which the document in question has led us, viz.:

1. The formation of a National Collection of Pictures truly representing "British Art;"
2. The erection of a suitable gallery to contain them; and
3. The advantages of the site selected for the Sheepshanks Gallery, and the bearing it has on the question of Art Galleries for the Metropolis generally.

National Gallery of Art.

Whatever had been done in other countries, England had made no approach to the formation of a collection of pictures for the use of the public until the present century was somewhat advanced. It is true that some of her early monarchs had encouraged art, and that even at the commencement of the sixteenth century many men of high talent, both Germans, Flemings, and Italians, had been invited to this country by Henry the Eighth, and in the next century by Charles the First, and that both these monarchs munificently rewarded art, and employed agents abroad to purchase for them the rarest pictures and statues that could be obtained in the countries where they were produced. Many of our chief nobility, also, at these periods were great collectors, and the country was gradually enriched by the possession of works of the highest class. Yet it was only as private individuals, and to adorn their palaces and mansions, that monarchs and noblemen encouraged artists and purchased their works, and the idea of making them available for the instruction and gratification of the public was a thought of later growth, even abroad, and does not appear to have been contemplated in our own country until the commencement of the present century. The matter was pressed upon the attention of the Legislature on the occasion of a proposed gift of pictures by Sir G. Beaumont, which ended in the purchase in 1824 of the Angerstein Collection, to form the nucleus of a National Gallery.

* Introductory Lecture—On a National Museum of British Art in connection with the Sheepshanks Gallery: By Richard Redgrave, Inspector-General of Art.

Long before this period, art in this country had made rapid strides; Hogarth, Reynolds, Gainsborough, Moreland, Wilson, and others, had laid the foundation of the British School, and the public, already instructed by the annual gatherings of works of art in the Royal Academy, the British Institution, and the old Water Color Society's rooms, had been somewhat accustomed to exhibitions of pictures, and had learned to appreciate artists and their works.

Thus it may be fairly said that the newly-formed gallery, instead of producing in the public a taste for art, was itself rather an evidence that the public was educated to demand and require it. The gallery at its first formation contained about forty pictures, chiefly of the Italian School, and although among them were some six or eight pictures the work of British artists, it was the works of the old masters that were looked upon as forming the British National Gallery of Art.

Here, then, was a great step in advance—the establishment in this country of a National Gallery of Pictures, open for the instruction and gratification of the people generally. It is quite evident, however, that there was little belief at that time in British Art. The collection was substantially formed of the works of ancient masters; and neither then nor since has any Government aid been given to add, by purchase, to the few British pictures it contained, while large sums have been spent and the collection nobly increased in the other direction. Now, of the value of a collection of the fine works of the great masters in art, and of the desirableness of making a collection of such works, while it is in any way possible, there can be no doubt; but this is not the subject of my present address. To artists, the examination and study of such works are of inestimable importance, while to others, educated to understand the high qualities they undoubtedly contain, their contemplation is a great pleasure.

British Art.

True art, when it arises spontaneously in any country, reflects the feelings and ideas of the people and age to which it is addressed. Thus all early art used in the service of the Church was necessarily of a deeply religious character. Yet how distinct is that character at the same period in Italy and in Flanders? In the hands of Giotto, Ghirlandaio, Angelico, and Francia, it is spiritual and ideal; embodying rather the soul of religious sentiment than approaching the actual. In the Low Countries, on the contrary, the heads of saints and historic personages, nay, even of the Saviour himself, instead of being ideal impersonations of the holiness or virtues which were the characteristics of the apostles and martyrs, as of the Lord of All, seem rather to aim at the actual. The living persons of the painter's day are the actors of the great scene of man's redemption. Instead of abstract passions or sentiments, the men that Hemling, Van Eyk, or Vander Weiden saw around them are repeated on their canvas; touched, however, with the fullest expression of love or hate, of awe or reverence, of which man's soul is capable. The Rhineland plains, the Burgundian cities, fill up the background where the Magi worship or where the shepherds bow to their new-born Lord; while the spires of Aix or Cologne represent for them the City of the great King. The people of the painter's day gazed and saw no anomaly in all this; they felt, in faces like their own, the spirit of life that the painter had breathed into his canvas; they acknowledged in his creations men of like passions with themselves, and were stirred with a feeling of the sorrows and misfortunes of those whose history was thus represented.

When art was really born in this country, religion rather repudiated than sought it. It offered to deck our churches, but was rejected. Obtaining no encouragement, no patronage, in this direction, it has sought a place in men's homes, and addressed itself to their affections; and it is to the credit of our national character, as well as to our artists, that it has never pandered to sensuality or descended to the base and low in the subjects of its choice.

It is greatly to be regretted that the fear engendered by the hard battle our forefathers had to fight against the corruptions of Christianity excluded religious subjects from the artist's choice; for I am convinced that they would have treated such subjects, if with less spirituality and grandeur than the Italian, at least with the earnestness of early Flemish art, touched perhaps with a deeper and warmer glow of the religion of the heart. But while a demand for such

subjects is a thing to be hoped for, our artists *have* labored in the cause of religion, and he who comes first on the list of English painters was at least a deep and earnest "preacher of righteousness." I allude to William Hogarth. All will allow how truly English was his art, how peculiar to his own age and time, yet containing truths for all time. Arising at a period when the habits of society were less refined than at present, and vice more outwardly expressed and tolerated than would now be permitted, he was the merciless satirist, the scourger of profligacy in all ranks, and read to all the most stirring and terrible lessons as a moralist, without forgetting that he was a painter.

After Hogarth—Reynolds, Gainsborough, and Wilson, must be considered as founders of the modern British School; for the two first, as portrait-painters, it is hardly possible to take too high a rank. Those who have been enabled to see their works in the late Manchester Exhibition will feel how thoroughly such portraits as the "Nelly O'Brien" or the "Lady Althorp and Child" of Reynolds, or "Mrs. Graham" or the "Blue Boy" of Gainsborough, are worthy to be placed side by side even with those of Titian or Vandyk.

I have said that it is a characteristic of English pictures to appeal to the affections and home-feelings of the people; and the subjects chosen are generally some touching incident of daily life, or from our own poets or writers: thus they are open to the understandings of all. How much more are the general public likely to be touched and softened by such pictures as Landseer's "Random Shot" or "Shepherd's Chief Mourner" than by the Boar Hunts of even a Rubens or Snyders! In the "Random Shot," the lesson is almost too painful; yet, like a tragedy, it delights while it afflicts us. A young fawn stands on the snow-drifted moor beside the dead body of its dam. The foot-prints in the white snow are dabbled with the mother's blood—she has been smitten by the cruel hunter's careless shot into the herd. Who is there that, shuddering at the slow death in prospect for the harmless little one, does not forswear the hunter's sport, which leads even by an accident to such an end as this? Or take the other beautiful work, "The Shepherd's Chief Mourner," one of the pictures in our noble gift. What a history does it contain of companionship on the hills in storm and sunshine, of toils and watchings, of hunger and unrest endured together; the whole of the shepherd's simple life is seen on that little canvas—lonely it was but for that *one* friend, now left to mourn over his master's grave. Examine the details of the picture; they will tell you at a glance that master's age, his religion, and his hopes, of his hard fare and bare lodging, apart from his fellow-men and kind, but finding strong affection in the brute creation; "The righteous man is merciful to his beast," saith that Scripture which lies open at his lonely coffin's side, and that he *was* merciful, the attachment even after death of his faithful colly shows. Here is a subject that it wants neither rank nor education to comprehend: the wayfaring man, though a fool, can not fail to understand it, for a dog is the companion of the humblest, and even the beggar has one by his side. The commonest minds may be touched to tears by the tale of a life and history that a single glance tells.

Or if you would see how our painters touch the incidents of every-day life, look at the pictures by Webster, which are also included in the spontaneous gift of Mr. Sheepshanks. In the "Going to" and "Coming from the Fair" of this painter you see the simple pleasures of the agricultural population, not a stilted theatrical display of country life such as we should find depicted in the false pastorals of Watteau and Lancret, wherein kings and queens, and lords and ladies, play at Colin and Lubin, at Phyllis and Corydon—but true-hearted, honest country ploughmen, with kindly hearts and full of love for little children. How different from the drunken boors and frows of the Dutch school, maudlin and filthy in their cups, pouring a dram perchance down the throats of their fractious children to stunt them into the same dwarfed mis-shapen growth as themselves. Look again at this painter's picture of "Sickness and Health;" how simple, yet how touching! It may not be painted with the charming facility of Teniers, nor have the lustrous jewel-like richness of Ostade, but how is it touched with the sweet affections, the joys, and sorrows of home! At a cottage door, beneath a sheltering tree, and looking out on fields and flowers, sits, propped up with pillows, a sick child. The languor and self-indulgence of returning health is in every limb. A smile plays over her pale face as she

looks at her healthy sisters dancing together beneath the flickering shadows to the Savoyard's music. How true is the tender expression of the mother, who hangs over her, and who for a time forgets the sportive beauty of her healthful children to muse over this stricken one, and to see if the tide of sickness has really ebbed away! It is a tale common to every home, and touching to every heart.

[We omit Mr. Redgrave's notice of the peculiarities of Mulready, Leslie, Collins, Newton, &c.]

Now, it is through these our English painters that we must learn to love and understand the old masters. What is there in the *subjects* of the old masters, with all their beauties and all their excellences—granting that they have all that are attributed to them—calculated to touch the mind of our own people like these I have named? What to our multitudes are fat Bacchuses and maudlin Silenuses? What do they know of Cephalus and Procris, of Diana and Endymion? To them Mercury and Venus are but mere names. Nor with the dreary saints and dark martyrs of the olden church have they more sympathy; nay, they have often to overcome a repugnance, and a natural one, to the subjects of such works; and though it is true that Sebastian submits to his arrows, and Laurence to his gridiron, but too often with a pleasing calmness; it is mostly the material martyrdom, rather than the mental struggle, that has been depicted in such works. And if the *subjects* are rarely such as can interest them, is it true that they can appreciate the art? The visitors to our galleries may and do bow down to names, and affect a pleasure where they are told they ought to feel it; because, as the Vicar's son was taught, "it is the fashion to praise Pietro Perugino." But this is the last thing to be desired, and one emotion of genuine love and admiration more to be wished for than all this got-up admiration. Let me not be misunderstood, however. Let me not be thought to depreciate the true and noble works of the old masters. Would that our age could produce such, in their rarest and highest qualities—produce such, really in harmony with the feelings of our age and generation! No, it is the cant of false admiration that I contend against, the cant of pretending to love, and admire, and understand that which we know must be wholly unintelligible to the multitude, and to a knowledge of which they must be led up step by step, if at all.

Now, in order to cover all these changes and deteriorations of works noble and glorious at first, and which have a majesty even in their decay, a false theory has been invented and maintained, "that pictures improve by time," improve vastly as they get a certain quality called tone by dirt and varnish. Many a choice work has been thus *improved* before its time by ignorant and impudent pretenders. I pray you do not believe in this theory. Do not believe that the picture we see to-day is equal to what it was when it left the painter's easel. He knew best that conceived the work, that thought it into form, whose cunning hand traced it, who fetched it from the depths of his own heart, and fashioned its feelings into order in his active brain. He knew best what the work should be. He considered it, and pronounced it finished; and it is not to be imagined that he left his own choice handiwork to time and chance to complete. Had it been necessary to give his work the tone and hue of age, could he not have done that which the commonest picture-vamper is able to perform, who gives with ease the true *patina* to his manufactured Titians and second-hand Raffaelles. No; a little allowance for change the painter might have made; but, believe me, he of old—as our own painters of to-day—wished his picture to be seen at once to the best advantage, and I have no doubt that we should admire much more intensely and value more highly those masterpieces of past artists, could we see them as they first left the hands of the mighty geniuses who produced them.

There is a double aim in all collections of art—the one the accumulation of rare and choice works only, for the pleasure and improvement they afford; the other historical, to illustrate the growth of art and the succession of artists, either generally, or, as in the case I am advocating, in a particular country. When could such a collection as would illustrate British Art be made so well as at present? The art (except as to one or two scattered pupils of foreign painters) is scarcely more than a century old; and ancient men still among us have

lived in the memory of its first professors. A series of their works could be readily obtained; the genuineness of their pictures undoubtedly determined; their mode of practice is well known. The presentation pictures required from its members on their election to the honors of the Royal Academy is in itself almost the skeleton of such a collection. Mr. Vernon's gift would swell its proportions, Mr. Turner's largely aid it; and now Mr. Sheepshanks, denying himself the pleasure of their daily contemplation, has nobly given up the whole of his collection during his lifetime, not to form an exclusive Sheepshanks Gallery, but to form part of a National Gallery of Art, part of such a series as I am desirous of seeing gathered together while time and opportunity allow, and for which purpose a small annual grant from the State would abundantly suffice.

A collection of British pictures, if made, would have to include both works in oil and works in water-colors. Nor would it be perfect unless there were added to it such sketches and drawings as serve to illustrate the mode in which a painter thinks out his work, the sketches he makes before commencing his labors, and the studies which assist him in its progress to completion.

Now as to water-color painting, nothing has yet been done to gather together a permanent public collection of that art in which England stands unrivaled, and which Englishmen are at least allowed to have entirely originated. It is within our own century that, in its present condition, it has arisen; almost with the men of our own day and who are our own contemporaries. True it is that the master-spirit who gave it birth has passed away, the artist to whom of all others it is most indebted; but in dying he has rendered it still more obligatory on the State to honor the art he commenced—for, with that feeling which we have seen the love of art engenders, the desire to enable others to partake of its pleasures, Turner left by his will to the nation the most complete and valuable series of sketches, drawings, and pictures, ever produced by one man, so that in this one collection is contained the history of an art, its birth, growth, and meridian splendor; and it really requires but little trouble to gather round this centre the labors of Turner's rivals and competitors, in order to form a complete history of an episode in art, to do a just tribute of honor to our own artists, and at the same time to ourselves as a people.

With the oil-pictures which Mr. Sheepshanks has given to the nation there is a small, yet interesting, series of drawings and studies. Such works at present have not the same attraction for the public as pictures, but the time may come when they will prove perhaps of equal interest. Who would not desire to observe the first dawnings of talent, the growth of art-power in a man of genius. And here will be found the means of such observation. One frame contains the drawings of Edwin Landseer in his earliest childhood; another, one of those rapid yet complete productions of his mature age. The growth of a thought also into a complete work—the studies that preceded its completion, the changes that it underwent in progress—how interesting to all who will enter upon their consideration! Such will be found here by Callcott, Wilkie, Cope, Mulready, and others. Should we neglect to increase such a collection now, when ample means for forming it are at hand, we may have to regret hereafter, and to obtain at a far higher cost, a far less perfect series than can now be readily formed. The value of these studies has always been felt by the true appreciator of the artist. The drawings of Raffaele and Michael Angelo are as costly as their other works; hundreds have been paid for a single genuine drawing of the former master. Such works will often be found to contain a greater freshness, a purer feeling, a more facile elegance than the labors whose completion they served to forward. How much of study, how much of labor, a picture has cost the artist, he alone knows; something of it such studies may serve to indicate. The world has ever been too ready to impute every thing to the inspiration of genius, and to overlook the truth that, however inspired, he who would win fame must

"Scorn delights, and live laborious days;"

and that when we see a noble picture, we see not the labor of the artist, but the result of that labor.

Architectural Conditions of the Sheepshanks Gallery.

Various conditions had to be observed—

First, the greatest possible security for the works against fire, as well as from improper exposure to sunlight, to bad air, and to atmospheric influences.

Secondly, the best possible arrangements for the display and lighting of the pictures; and this also with a view to providing for opening the gallery to the public at night, so that the industrial classes who are actively employed in the day might have the means of visiting the galleries and enjoying the pictures in these their only leisure hours; and,

Thirdly, the pictures, being all of a cabinet size, were to be hung near the eye, and suitable provision was to be made for their convenient inspection by the public.

Many other conditions had to be attended to, such as the thorough warming and ventilation of the apartments, the best mode of preventing accumulations of dust, &c. Added to this, while the work was to be sufficiently solid and substantial, it was to be erected rapidly, in order to receive the pictures as soon as possible, and with no expense that could possibly be avoided.

The gallery provided to fulfill these conditions has been successfully constructed under the direction of Capt. Fowke, R. E., and you have all had an opportunity of inspecting it. It is almost thoroughly fire-proof, and with every provision for warmth and ventilation. It contains, in addition to the four rooms forming the picture-gallery, four rooms below of equal dimensions, for the display of other art-collections belonging to the public, of which the Department has charge. The arrangements for the security and proper display of the pictures, and the lighting both by day and night, are considered adequate and satisfactory, and the whole has been erected at a cost of 4,500*l*.

Without any great outlay of public money, it has enabled us to make a series of careful experiments, both as to fire-proof construction, proper proportions and modes of lighting, warming, and ventilation, which will be extremely valuable in prospect of these grander galleries, which must shortly be provided—valuable whether as warnings against failure or assurances of success; in view of which I now proceed to explain, as briefly as possible, some of the results attained in the construction of the present building.

It is well known that the varnished surface of an oil picture forms a sort of imperfect mirror, and unless the light is arranged with proper reference to the position of the spectator in viewing the picture, he is prevented from seeing the painting by an unpleasant glitter formed by the imperfect reflection of the source of light upon its surface, as the window or the gas-jet, for instance. This would be made quite clear to any one who, standing before a picture where this glitter obtrudes itself, would take down the work and substitute a true mirror in its stead, when he would at once see a *perfect* reflection of the window or other source of light. Now the first question to be considered is, how to place the source of light so that the spectator, when at a convenient point for viewing the picture, is not annoyed with this imperfect reflection on its surface; and when a gallery is to be built for the reception of works of art, this should be one of the paramount considerations. This would appear to be an abstruse question, since we so seldom see a thoroughly well-lighted gallery; it is, however, by no means the case; the laws of vision are absolute, and are clearly defined, and the exact places where all these reflections will be troublesome can as easily be laid down by lines, as the plans and dimensions of the galleries themselves.

But there is another condition to which it is necessary to refer in galleries which, like the Sheepshanks Gallery, are lighted from the top (the most usual method, from the much greater hanging-space obtained). One of the first requisites is sufficiency of light, but as the simplest way to remedy the evil of reflection is to diminish the size of the opening for the admission of light, and raise the roof, this expedient is often resorted to, (the more that it accords well with the grandiose views of the architect.) It thus happens that in shunning one evil we fall into another; by raising the roof, it is true that the place of the reflection is raised above the usual hanging line of the pictures, but alas! they are as in a well where but few rays of light can penetrate.

[These principles are illustrated by reference to the Galleries of Munich and Paris.

The Sheepshanks Gallery is provided with an outer skylight on the roof, and an inner light of ground glass below it. This obviates all danger from leakages, affords ample opportunity for abundant ventilation, and screens the pictures from the direct rays of the sun, so that it is only in the extreme brightness and heat of summer that the blinds need be used.

The first thing to be demanded in a National Gallery of Art, whether of foreign or British pictures, should be the perfect adaptation of the place to their arrangement and display. This is hardly the work of an architect. It should be determined by a painter. The necessary proportions, the height and situation of the lights, the widths, the heights to which the pictures should be hung, the proportions of different compartments or cabinets as adapted to the pictures they are to contain, should be settled first, and by or in conjunction with the painter, and the block, thus absolutely and unchangeably determined, may then be given up to the architect to treat in conformity with the rules of his art. There can be no doubt that by such means a nobler, because more characteristic, structure would arise, than by the usual method of neglecting the utilities and considering the elevation and decoration before the purpose. And if not, are not the pictures the object, to which architecture is wholly secondary. In building a palace, exterior grandeur and interior magnificence are as much requisites as its uses for habitation or residence; such may be given up wholly to the architect; here he may revel in the display of his art, and carry the decoration to any extent that is not inconsistent with the requisite amount of contrast;—but in a gallery for art, the art is the one thing to which all should be subservient; the pictures, in this case, are not meant to serve as subsidiary decorations to the architecture, but are themselves the jewels for which the building forms only a fitting and suitable casket.

The space already spoken of beneath the Sheepshanks Gallery, and which is included in the cost which I have named, is divided into four rooms, intended to provide for the secure display of some of the choicest treasures of the Museum of Ornamental Art. It was necessary here also to obtain the greatest amount of light that was consistent with security, and it will be found that the square contents of the windows by which it is lighted form considerably more than half the contents of the walls in which they are inserted.

In constructing a building of two stories, so as to be as far as possible fire-proof, it was necessary to have a floor impervious to its attacks, and the one adopted for the new galleries fulfills this condition. It is formed of wrought-iron joists, filled in with concrete, on the top of which, embedded in cement, is laid a surface of tiles. Thus all danger of fire extending from below is obviated, and, thanks to the excellent manufacture of tiles by our countryman, Mr. Minton, a floor is obtained, rich, yet sober in color, and remarkably hard and free from dust, very little being observable after those days on which the gallery has had its most thronged attendances. It is also easily cleaned, and requires no sort of covering, such as matting, cocoa fibre, or carpet, which retain large quantities of dust. The color thus obtained is very agreeable, and gives a feeling of completeness and richness to the Gallery, notwithstanding the floor is naked.

I may say a word as to the arrangements for warming. These are beneath the Yorkshire stone floor of the lower rooms. A large volume of air drawn from without the building, and which it is intended to strain from impurities, is thrown in a continuous, yet easily regulated stream, into both the upper and lower rooms, while an extracting shaft and other provisions are made to carry off the vitiated air, particularly that arising from the combustion of the gas at night. It has been found that dry heated air at once ascends to the top of the building, but that, if moderately humid, it distributes itself equally throughout the apartment. With this view, great care is taken, in heating the air, to retain a proper degree of humidity, and not to dry it in the heating process. The result has been found to be that the ventilation, during the extreme heat of the past summer, was such as to keep the gallery, even when crowded with visitors, below the temperature of the day-time in the shade, and agreeably cool at night: the only faulty point as to the winter heating being that the places for the admission of the warmed air are found to be confined too much to one place in each apartment, and would be better distributed much more throughout each room.

Accessibility to the Largest Number.

To the laboring man it would add to the pleasure of a visit to galleries of art to ramble afterwards in Hyde Park or Kensington Gardens; and such holidays are earnestly to be encouraged; they tend to bring the whole family—the working man, his wife, and children—to enjoy themselves *together*, and at the same time to get that fresh air and healthy out-of-doors exercise from which they are but too much debarred at home.

The great feature of the new Museum is, no doubt, the arrangement made for lighting and opening it to the operative classes after their working hours. Half the vices of the laboring man arise from the closeness, dirt, and discomforts of his home. In order to avoid this, he leaves his family for the beershop or the taproom, where he at least finds light, warmth, and companionship, and takes little heed of the habits of expense and vice that grow with the indulgence.

Is it not a noble thing to have provided a healthy pleasure for such as these—to have been the means of providing a place where men can assemble, not for lonely self-indulgence, but with wives and children, enjoying together with them, sights and pleasures that encourage the desire to make home more comfortable? Is it not a great thing that such public benefactors as Mr. Vernon and Mr. Sheepshanks have been the means, even if only for a few hours, of keeping thousands and tens of thousands from the haunts of vice and debauchery, of assembling them with their fellow-men “clothed and in their right minds,” enjoying themselves lawfully, with wives and little ones?

The Department has a general rather than a local action. It promotes the distribution and circulation, as well as attends to the accumulation of art treasures. Why not let this action, which has been determined on as between London and the provinces, have effect as between London and its suburbs also. There is every reason why there should be one centre of action; one great store, as it were, of the nation's wealth; this must be in London, and may well be at Kensington, where ample space, the one thing needful, is at the command of Government; but there is no reason why we should have only one gallery for Art in London, any more than that we should have only one gallery of Art for London. Let those who desire to retain a collection in the centre, maintain the vested rights of Trafalgar Square; it may be used as a *Salon Carré*, a tribune for our choicest treasures if you will, and then Kensington, besides being the depot of the historical collection and the centre for circulation, may, in the Sheepshanks Collection, be also one of a number of local galleries of art. Taking the length from St. Paul's to Kensington for a radius, and drawing a circle round the cathedral with this radius, you will find that it intersects Tufnel Park and Victoria Park, while it also falls in the neighborhood of Greenwich and Dulwich. Why should not each of these places have its art-gallery? Dulwich is already provided; it only needs to administer it in the way best suited to popular wants, at present so strangely neglected, and to light it at night, and a large constituency from all the surrounding districts would flock to it.

Let suitable buildings be provided in the other districts, for which a means is provided by Mr. Ewart's Act. Such buildings once erected, and I have shown you that the cost of them is small, collections not only to delight but to instruct the public might be formed, each remaining twelve months in a locality, and then changed for another in rotation. The series commencing with a collection of Portraits well explained by means of labels, might be followed by a Modern Collection, a Water-Color Collection, a Turner Collection, a Collection of Drawings and Sketches, a Collection of Old Masters, a Collection of Etchings and Engravings, a Historical Art Collection, thus affording successive instruction and constant variety. Other persons no doubt would imitate the noble example of Sir F. Bourgeois, Mr. Vernon, Mr. Turner, and Mr. Sheepshanks, and aid with gifts a scheme so noble, if commenced by the State. The people would be gradually educated in art by collections leading them up from what they can feel to what they must understand in order to enjoy. These arrangements, once adopted, might easily be extended to our great provincial towns, so that the whole people would benefit by the nation's wealth; and thousands who now waste life, health, and substance in coarse and sensual enjoyments, be refined in taste, improved in morals, and taught to use some of those nobler faculties, which, as the gift of God, were not intended to be left uncultivated,

SCIENTIFIC INSTITUTIONS AND THEIR DEVELOPMENT.*

In London we enjoy, in spite of the alleged indifference of the Government, institutions which cover a large area of science, and are supported by the bounty of the State. The British Museum, confined in its scientific character to the illustrations of natural history, has long existed, a noble ornament to the metropolis. Foreign countries had, many years ago, perceived that it was necessary, for the popular apprehension of the connection of the sciences with the industrial arts, to have supplemental museums, connecting the abstract sciences with their applications to the usual industries of the country. It was in 1835 that the necessity for such museums in England was formally brought before Government by a man of rare intelligence and singular perseverance, the late Sir Henry De La Beche. This eminent geologist was then in charge of the geological survey, which, following in the footsteps of the trigonometrical survey, lays down upon maps the geological and mineral features of the various districts, and he proposed to form a museum showing the economic uses of mineral substances.

Museum of Practical Geology.

The collections having commenced in 1835, had assumed such form in 1837, that the Government gave some rooms in Craig's Court, Charing Cross, for their reception, where they accumulated so rapidly, that first one house and then two houses became full; and finally, growing in importance and extent much beyond the capacity of the Government houses in Craig's Court, the handsome structure in Jernyn-street, now known as the Museum of Practical Geology and Government School of Mines, was erected. The importance of giving a mining character to the institution was very obvious. The mineral produce of this country, independently of building stones and clays, exceeds the annual value of 28,000,000*l*. It was becoming, in a country so dependent on its mineral wealth, to rear a palace for the illustration of the manufactures depending upon it. The geological survey of the United Kingdom, a Mining Record office, from which now annually comes the best statistical records of the various branches of mining industry which we possess, and the Government School of Mines, are now associated in the same building under Sir Roderick Murchison, who was appointed Director-General on the death of its illustrious founder.

Government School of Mines.

With regard to the Mining School, a few remarks are necessary. England has been the last nation to found a school for the purpose of instructing those engaged in the practical pursuit of mining and the sciences bearing upon it, notwithstanding that our mining produce is about four-ninths of the produce of the whole of Europe. Now that the school is established, under professors of acknowledged eminence, the mining districts do not as yet send up that number of pupils which was anticipated on its foundation. This is certainly not owing to want of zeal or ability on the part of the professors, nor is it due to want of professional success on the part of the pupils, for most of those who have gone through the courses are now in honorable positions. It is disheartening to the teachers that their labors are not extended over a greater area of usefulness. I believe that this will continue to be the case until a number of local mining schools are spread through the provinces. At present only two exist—one in Bristol and another in Truro, while a third is in the act of being established at Wigan. When these extend, they are likely to become feeders to a central metropolitan school. A tree grows best from its roots upward. The mining districts desired the establishment of a central school, but they now perceive that local schools are also necessary, and would establish them, if the activity and intelligence of the few were able to overcome the *vis inertia* of the many. I believe that the full benefit of this central school to the country will not be realized until the conditions for the erection and support of local mining schools exist.

* Introductory Address—On Scientific Institutions in connection with the Department of Science and Art. By Lyon Playfair, Chief Inspector of Science Schools, &c. 1857.



Museum of Economic Botany.

The institution in Jermyn-street represents the uses to which mineral substances are put, while the Museum of Economic Botany at Kew, under Sir W. Hooker, shows the economic uses of vegetable substances; but, until lately, no illustrative museum was devoted to the practical appliances of animal matter. This want is being supplied by the Royal Commissioners for the Exhibition of 1851, who, starting with the coöperation of the Society of Arts, and then obtaining that of this Department, are gradually and satisfactorily developing collections in one of the galleries of this Museum.

Royal Dublin Society.

Dublin is rich in scientific institutions, chiefly supported by the State. The Royal Dublin Society was founded by royal charter in 1749, and is supported partly by the subscriptions of its members, and partly by considerable public grants, greater, however, in former years than at the present time, when they amount to 6,000*l*. Its connection with the Department dates from 1853. The objects of the Royal Dublin Society are carried out wholly under the responsible management of its Council, the duties of the Department in regard to them being confined to inspection and publicity, and to giving such suggestions for improvement as may occur to its officers. The Royal Dublin Society possesses a Museum of Natural History of high value; within the last few years it has been much improved in its scientific arrangements and facilities for instruction. There is also an Agricultural Museum, still imperfect in its character, but the Society is now engaged in reorganizing and placing it on a basis worthy of the successful agricultural shows of live stock and produce annually held in its premises. The library of the Society is large and catalogued, but while the admission is under rules which enable the middle classes to have ready access, its portals are not yet thrown widely open to the working classes in the evening. The Botanic Gardens at Glasnevin are well arranged, and visited freely by the working classes under liberal terms: last year 83,000 persons visited these gardens. In financial connection with the Society, but under the responsible management of the Council of the Zoölogical Society, are the Zoölogical Gardens, aided to the extent of 500*l*. per annum by the State. These gardens on certain days have penny admissions, and in summer are open also on Sunday, after hours of Divine service, and are visited by 125,000 persons annually.

Museum of Irish Industry.

The Museum of Irish Industry was founded by the Government in 1845, and was transferred from the Woods and Forests to this Department in 1853. Although corresponding in many points with the Museum of Practical Geology, it embraces a wider field of illustration, for it includes the three kingdoms of nature—animal, vegetable, and mineral. Its name is scarcely appropriate, for while it gives prominence to the resources of Irish industry, it includes also extensive illustrations in manufactures having neither birth-place nor adoption in Ireland. The annual votes for the museum and educational courses connected with it are 4,336*l*.

The educational character of this institution is peculiar. The professors lecture during the day in short courses, chiefly attended by the upper classes of society; these courses, which are given in the premises of the Royal Dublin Society, being in fact a continuation of the system adopted by that Society before the professors were made common to both institutions. But more extended courses are also held in the evening, and are then attended by shopkeepers and working men. Examinations on the subject of each course follow, and prizes are given to the most successful students, while a general competition on all the courses attests the general progress during the year. The prizes are valued and keenly competed for, and I am glad to say that some of the most successful competitors are of the gentler sex.

There is a peculiar system in Ireland of sending lecturers in science to the provincial towns, the expenses being paid partly by the locality, but mainly by a Parliamentary vote of 500*l*. These lectures are superintended by a committee of eminent men, who arrange that examinations should be held in each town after the delivery of the course. The success of these examinations, so far as

they go, has induced the Government to consider a more widely extended plan, calculated to make the permanent results greater than can be expected from the present arrangements.

Edinburgh Industrial Museum.

While England in 1837 and Ireland in 1845 got their industrial museums, Scotland only had a promise of one in 1854. During that year, Parliament, in consequence of the memorials to the Government from the chief learned bodies in Scotland, and from the representations made by deputations of the leading men of the manufacturing and agricultural districts, agreed that the time had arrived when Edinburgh should have a museum similar to the institutions in London and Dublin. In the votes for that year the House of Commons gave 7,000*l.* for the purchase of a site upon which the museum was to be built, and Government appointed Professor George Wilson as its director, his duties being to make and organize collections, with the view of having them ready to display in the new building when completed. The site, one immediately contiguous to the Edinburgh University, was purchased, and for three years the director and his assistants have been engaged in amassing collections.

In Edinburgh, in connection with this Museum, are most valuable collections of natural history, now displayed in rooms of the University building. These came into connection with the Department in 1854, and a remarkable result attended the increased facilities for admission then given. Formerly the charge for admission had been one shilling; it was reduced to sixpence, and one day in the week was made free. The attendance, which formerly averaged about 800 visitors, suddenly sprung up to above 100,000 annually.

The collections, both of natural history and of technology, are made available for instruction through lectures of their respective curators.

Provincial Schools of Science.

The promotion of provincial Art Schools began in 1837, and in the first ten years, on a system of direct grants in aid of the schools, 23 schools were established, or at the rate of 2 $\frac{3}{4}$ schools per annum. When the Department of Practical Art was established in 1851, it proceeded to reorganize the system under which the Schools of Design had been aided. The grants had continually been increasing, while the local support had been decreasing. The plan adopted by the Department was to make the schools as much as possible self-supporting. The master received a sum varying in amount according to his qualifications, but not exceeding 50*l.* His chance of adequate remuneration therefore depended upon his success in teaching, the fees necessary to reward his exertions being derived from various classes of the community. Drawing is an accomplishment desired by the rich, and for which they are willing to pay. Accordingly, classes for the sons and daughters of wealthy manufacturers can be opened at high fees. But it is made a condition that when they are, classes must also be established for artisans at charges compatible with their means. The high fees of the rich render it possible to have classes at comparatively low fees for the less rich, without materially disturbing the action of a system aiming at being mainly self-supporting. Under this plan, 46 Schools of Art arose between 1852 and 1858, or about 9 annually.

It was desirable to see whether the same system could be applied to the establishment of Schools of Science, which, as regards the provinces, only began in 1853, and are therefore sixteen years in date behind the Schools of Art.

The conditions of the two kinds of schools were, however, clearly dissimilar. The manufacturing towns offered no rich pupils to learn science. The sons of wealthy manufacturers very properly went to the Universities, where they could learn science better than in a provincial school, and it did not enter into the scheme of education of their daughters. The two classes, therefore, which mainly supported Schools of Art were wanting for the support of Schools of Science. The working men formed, no doubt, the most desirable constituency which they could have, but one unable by fees to render such schools self-supporting. Suppose, for instance, a case of decided success in the new establishment of a School of Science, where a hundred working men at once entered as pupils: they could not be expected to pay more than 20*s.* for their instruction,

and as half of this sum, on the principle of Art Schools, goes to the committee of the school to meet local expenses, only 50*l.* would remain for the annual remuneration of the master. But while it was thus clear that Art and Science Schools could not be established upon an exactly similar basis, it would have imperiled the self-supporting system, growing so well in the case of Art Schools, if another division of the same department resorted to the old system of money grants, and adopted them without first seeing whether any less objectionable system could be devised; it was far better to win experience in the working of some provincial Schools of Science on grounds of action common to the whole Department, than to create rapidly a system of schools before practical experience was obtained as to how they would be supported.

Navigation Schools.

The officers of the mercantile marine are now obliged to pass examinations under examiners in connection with the Board of Trade, and it was desirable to establish at the outports, schools in which the officers might obtain instruction in the subjects of their examination. This at once offered a constituency which could pay fees corresponding to the high fees of the upper and middle classes in Schools of Art, thus enabling us to extend the advantages of the schools to the common seamen, who could not pay high fees, and to their sons who were about to enter upon a seafaring life. Schools of this kind have now been founded at the London Docks, Poplar, Shadwell, Liverpool, Newcastle, Sunderland, Hull, Yarmouth, Waterford, Aberdeen, Leith, and Glasgow, and could readily be established in the other outports, if we could train masters fast enough to meet the demand. I must not omit one other school, whose present locality I can not more precisely designate, than that it is somewhere in the ocean between England and India. It is one of the finest ships of that spirited merchant, Mr. Green of Poplar, who has fitted it out as a School of Navigation, carrying a number of midshipmen under one of our masters, who is bound also to instruct the common sailors in the principles of navigation. I trust it will not be long before this noble example is followed by others, for I can conceive nothing more calculated to raise the tone and position of our mercantile marine, than to unite a thorough instruction in the science of navigation with the actual practice of seamanship as learnt afloat.

The amount of real scientific knowledge required for Board of Trade certificates is remarkably small. A mere empirical power of computation is all that is requisite, and no scientific or intelligent understanding of the reasons of the processes is required. The seamen come for a few weeks to the schools and cram themselves in the use of logarithms and the Nautical Almanac at high pressure, blowing them off to the examiner under the same pressure, so that little remains after the operation, and then they go out again to sea. The Board of Trade had great difficulty in establishing examinations at all, and the time may not yet have arrived for their improvement, but, gradually at all events, they might be made a little more rational. There are a few honorable exceptions of mates and masters who come, voyage after voyage, to our schools, until they thoroughly acquire a mastery of the principles engaged in their practice. As a rule, however, the officer only takes that amount of crammed instruction requisite to pass his examination, expecting the master to shovel into his brain longitudes and latitudes, logarithms, trigonometry, celestial phenomena, and the like; a large amount of fuel, but without one true spark from the torch of knowledge to set it on fire and keep it alight.

To give only this cramming would not justify the existence of Navigation Schools, and therefore each school has attached to it, as a necessary condition, a school for the preparation of boys destined for a seafaring life. This labors, however, under similar difficulties which all juvenile schools experience, that just as the boys have got over their preparatory studies, and are ready for the higher branches, their parents send them to sea. The Trinity House at Hull has successfully met this difficulty, by selecting the best forty boys of twelve years of age, and giving them free schooling and a uniform, on condition that their parents bind them to stay for two years longer. This inducement has been entirely successful, and the school is in an admirable state of efficiency.

Causes of the Failure of Scientific Courses and Institutions.

In addition to the Schools of Navigation opened in the places already named, special Schools of Science, in connection with this Department, now exist in London, Edinburgh, Dublin, Poplar, Bristol, Birmingham, Leeds, Truro, Stoke-upon-Trent, Wigan, and Aberdeen, some, in fact all, successful as to the disposition of the working classes to support them, but even those most numerously attended and increasing in numbers running the risk of abandonment at any time, because, with few exceptions, the expenses are greater than the receipts.

In recent years, the most meritorious efforts have been made by the public, with the coöperation of the State, to establish primary schools; but it has been too much the practice to consider these as sufficient for the education of the people. The public have labored zealously to bring together the materials out of which an educational edifice may in future be constructed, and have well laid some of the stones which are to constitute its foundation. Milton describes a complete and liberal education to be that "which fits a man to perform justly, skillfully, and magnanimously, all the offices, private and public, both of peace and war." Whether the primary schools of any country, and particularly of this country, are calculated to answer the objects thus demanded of education, will be seen by a little consideration. The average period given to education by the children of the working classes, between the ages of six and fifteen, is only *three* years; after that age, labor seizes them with an iron grasp, and refuses the chance of further improvement. Now, only think of this in a practical point of view. Many of us here have sons and daughters, and would one of us dream of calling that education which they could get at any time in a period limited to three years between the ages of six and fifteen? Only about $5\frac{1}{2}$ per cent. of the whole school population of our public schools have remained more than four years, commencing from the time when they learn the elements in the lowest class. It is certain that the indifference of the working classes to avail themselves of the advantages offered to their children is, to some extent, to blame here, for it is found that (in round numbers) 970,000 children in England and Wales, between the ages of five and twelve, are not at school at all, their absence being unaccountable by illness, occupation, professional home instruction, or legitimate excuse of parents.

What causes this indifference? I believe the most important cause to be explained in the following passage from a recent speech by Lord Stanley: "The school teaching of the boy has no connection with the after life of the man. Without a well considered system of instruction for youths and men, the school system, by which children only are taught, remains imperfect and almost useless, an ample foundation, but left without a superstructure." No doubt the early demand for labor removes many boys from school, but it has this effect because the parents do not see that the labor would have more value if the boy remained longer. The same moral feelings and kindly affection exist in the minds of artisan parents as in our own, and they would not be slow to bestow benefits upon their children, if they had a real faith in the system which was to confer the benefit. But parents do not see how the character of continued instruction in the primary schools is to act upon the future life of the child.

A natural mode of communicating scientific knowledge is by the lecture system, established in remote antiquity, and pursued in our existing universities. Mechanics' Institutions of course adopted the system sanctioned by so much experience. It was natural that a lecture system should arise in ancient times. Manuscripts were rare and expensive; people who could read them were not numerous, and persons readily congregated around the more gifted to hear their own wisdom or that of others. But printing and a cheap press has altered all this. It enables mankind to get at the sources whence most instructors derive their information. If the lecturer communicate only second-hand discoveries, he must be an able expositor indeed to render it really worth while to listen to him. Ejecting a certain quantity of known matter in the face of an audience is not education; that consists in drawing out the faculties of a man so as to enable him to apply them to the conditions of his existence. Unless the mind of the teacher actually grapples with the mind of the pupil, he can not find the dark holes in which the faculties lurk, so as to drag them to the light of day. The lecture system looks upon the audience as a mass; the school system looks upon each pupil as an individual. For instruction, I would rather leave a man

with his books than take him into the lecture room, unless the lecturer understood his function as a tutor as well as a prelector. I do not mean to say that much popular information may not be conveyed through lectures to large bodies of people, but simply that they are not nearly so well adapted for the purpose of earnest education as the systematic school system. The artisans in Mechanics' Institutions soon found that they were deriving little advantage from lectures, so they gradually left, and a mixed constituency mainly rose in their support, consisting of artisans, shopkeepers, and clerks. This constituency was so mixed in its character, that discordant demands arose as to the style and subjects of the lectures, which lost their continuity and became "sporadic;" while the lecturers themselves presented a motley assemblage of professors, conjurors, ventriloquists, and musicians.

Working Men's Colleges.

The artisan, finding the lecture system of the Mechanics' Institution did not meet his wants, seceded, and formed what has been called the Working Men's Colleges, either as separate institutions or as separate branches of the old Mechanics' Institution. Here was a great step in the right direction. This new system was founded upon the basis that systematic instruction on the school plan was essential for education; but the low fees necessary for artisan classes were insufficient to pay properly-skilled teachers, and so these necessarily were volunteers, men fond of and anxious to promote education. The nature of the classes thus became an accident, the fortuitous result of particular qualifications on the part of men willing to assume the teacher's office. Reading, writing, and arithmetic, were the only classes common to all. One teacher added Latin, another logic, another Greek, French, drawing, history, elocution, mechanics, &c., until some of the largest ones in England boast of having forty to fifty classes. Now, no one who has thought of the subject would venture to depreciate the study of any of these branches of human knowledge, or cramp the mind of any man who could take them all in with healthy draughts; but if the working man is to hover like a butterfly on the margin of one lovely flower only to be tempted away from one to another by the transient appearance of a surpassing loveliness, the variety is little likely to administer to his educational elevation. Such a system, as we find in many Working Men's Colleges, is, in my opinion, injurious to industrial instruction. It is the error in a new form of a university system engrafted upon a class not fitted for university training, and conceived without reference to the wants of a locality, and forgetful of Pope's maxim, that we should "consult the genius of the place in all."

The first requirement in the education of the working man is to give him his position as an intellectual being, by enabling him to understand what he is doing, that is, to explain to him the natural laws upon which his labor depends. It is not sufficient that he should be enabled to fulfill his duty; his dignity as a man requires that he should be enabled to fulfill that duty with understanding and intelligence. If public education be aimed at the first point only, all it does is to fix a handle to a tool, or a framework to a machine; the second aim insures that the machine is the most perfect of its kind, adapted to fulfill all that is required of it. You will understand, then, that while I do not undervalue one branch of knowledge professed at these Working Men's Colleges, I think they miss the primary means of elevating the working man, because they do not concentrate their energies on a few branches of knowledge bearing on his daily life. The most successful school for working men has probably been the School of Art in Edinburgh, founded by Mr. Leonard Horner in 1821; at all events, it can boast of a larger number of pupils and a duration of existence not possessed by any other secondary school for artisans. Its success has been mainly owing to the few subjects which it professes—these being confined originally to mathematical science, chemistry, and natural philosophy; although, at the request of the pupils who found that they were deficient in elementary knowledge, English, French, and drawing have since been added. The administrative duties of its Council (which I should mention consists only of gentlemen and master mechanics, not workmen) are within control, its teachers are qualified and paid, and the students have, within a limited area, a choice of the sciences embraced in the manufactures of their city.

SOUTH KENSINGTON MUSEUM OF INDUSTRIAL ART.

The origin and objects of the South Kensington Museum of Art are thus given by Mr. Robinson in his Introductory Lecture,* in the Course designed to explain the various objects and operation of the Science and Art Department.

PERMANENT EXHIBITION OF INDUSTRIAL ART.

As the memorable Exhibition of 1851 drew towards its close, and the completeness of its success became apparent, the desire that some permanent institution of an analogous nature should be established, was very generally entertained. While justly proud of our country's preëminence in industrial pursuits, it was yet felt that in one particular, namely, in industrial design, we were outstripped by our neighbors. Some accounted for this inferiority on the old hypothesis of the natural inaptitude of Englishmen in matters of art, while others, with more truth, ascribed it to the want of those aids and appliances to industrial art-education which other countries had long enjoyed.

As to our supposed natural inaptitude, this hackneyed opinion was no longer to be endured; a thousand indications in the Exhibition itself pointed to a contrary conclusion; and in particular it could not be denied, that the preëminent arts of painting and sculpture, although with less of academic aid, flourished as in no ungenial soil, nay even gave evidence of distinctive originality, and a healthy exemption from traditional influences, manifested in no other country. But hitherto painting and sculpture had alone been deemed worthy of serious national regard: schools of design had not flourished, mainly because it was impossible to make people believe that the high and abstract art of their imaginations could have any thing in common with manufactures, or the every-day concerns of life. Our manufacturers and workmen never realized the fact that art could be their practical concern, until 1851 opened their eyes and aroused at once their sympathies and their fears.

Then practical England found out that her nearest neighbor and most formidable industrial rival, France, had made this discovery at least a century ago, and in the superior art-power displayed in the French contributions to the Exhibition, recognized the results of a hundred years' national encouragement of the study of industrial design. The true cause of our relative inferiority was thus evident, and that we were not utterly beaten in this unequal competition was matter for congratulation. Instead of being disheartened, therefore, the general feeling was that of the necessity for redeeming lost time by redoubled activity; and schools and museums of art were felt to be the objects towards which the material resources, as well as the moral influences resulting from the Exhibition, might with especial propriety be directed. The Government Schools of Design, although their action had been languid and irregular, had already exercised an appreciable influence on industrial art; they were, however, experiments only, on a most limited scale; but now something far more extensive and practical was desired. The education of the industrial artist, moreover, was not all—manufacturers complained that their exceptional productions from the designs of eminent artists found but little favor with the general public, who perversely preferred the worthless designs they were accustomed to, and it thus also became evident that the education of the public at large in matters of taste was as essential as that of the artist. School teaching here was inapplicable, or, at any rate, it could only reach the rising generation, and the gradual but sure influence of museums was the only other means. The Exhibition of 1851 itself was a museum, of necessity limited in its teaching functions from representing only the art of the present day; and yet if on this restricted footing its influence had been so remarkable, what might not be expected from a permanent institution, on the widest and most liberal basis, comprising speci-

* Introductory Address—On the Museum of Art: By J. C. Robinson, F. S. A., Keeper of the Museum of Art, and of the Art Library. Delivered Dec. 14, 1857

mens of all periods and countries, specially directed and arranged with a view to the promotion of taste in ornamental or industrial art? Such an institution it was determined to found.

An application to Government for funds for the purchase of specimens from the Exhibition was immediately responded to, the sum of 5,000*l.* being granted, and a commission intrusted with its expenditure. The nucleus of a museum was in this manner speedily got together, and its further development was appropriately intrusted to the new Government Department which had been established for the better administration of the Schools of Design.

During the six years that have since elapsed, the Museum has advanced concurrently with the other branches of the Science and Art Department, and has now attained to the proportions of a great national collection. From what has been already stated respecting its origin, it will be evident that from the outset this Museum had a different and more methodic direction than most national collections, which in the beginning have been generally more or less fortuitous gatherings of things rare and curious, only assuming more definite character after long periods of time; while it is equally obvious that practical utility in an educational point of view is its most important function.

How Art Collections can be made Educational.

In almost every country, museums are too much surrounded by a sort of exclusive repellant atmosphere. People visit them with the feeling of being admitted on sufferance; the very want of sympathy with the ignorance of the general public, shown in the absence of any provision for their special instruction, being construed as an indirect intimation that such establishments are not intended for them, and that they are, on the contrary, to be regarded as costly foundations for the abstract encouragement of knowledge, meant only for the use and benefit of a favored few.

It may be true that the imaginary prestige thus created, even though it be the merest sham and delusion, is of some benefit to the cause of learning and science in the abstract; inasmuch as uneducated persons admire and respect much more that which is exalted, and apparently beyond their sphere of comprehension, than that which, being brought down to their own level, loses this charm of dignified mystery; while, at the same time, it may be urged that in endeavors at popular explanatory illustration there is danger of imparting only that little knowledge which is a dangerous thing.

But the two influences of museums here hinted at are compatible with each other. To elucidate and explain a work of art down even to the capacity of a child is not necessarily to vulgarize it. The refined connoisseur may enjoy the choicest specimen none the less because it is made the vehicle of instruction to the unlearned, while, whatever may be the effect on the irretrievably ignorant, it may be safely asserted, that if the general public are inclined to reverence that which, being truly noteworthy, they yet do not understand, their respect will not be lessened when they do.

Generally speaking, in all public collections the following points are, in an instructional aspect, of vital importance:—First, a well-ordered division of the collection into classes, in each of which methodical series of specimens should be got together, showing their historical or chronological and technical development; while in addition, casts, drawings, engravings, and photographs, of remarkable analogous specimens in foreign or private collections, or of complete monuments or objects *in situ*, of which the specimens in the collection may be fragments or details, should be arranged together with them. Every specimen, also, should be accompanied by a label-card amply yet succinctly describing it.

Catalogues full and complete, and also judiciously abridged, should be prepared, accompanied by historical and descriptive essays, and illustrated by engravings; by these aids each section of the collection would be as it were a standing treatise, designed to allure and lead on the observer to the methodic study of the subject; and the most indifferent visitor would perforce be taught something.

In the next place the collection should be fully accessible to all without distinction, every day, as early and as late as possible; this as a matter of public right, remembering that the slightest impediment thrown in the way of the *vis-*

itor, any thing in short which gives to admission the aspect of a favor conferred, is striking at the root of all success. Students and others should be afforded all possible facilities for copying, under regulations involving no unnecessary forms of application or delay; and finally, every object susceptible or worthy of it should be reproduced by molding, the electrotype process, photography, or engraving, and be made available to the public at a minimum price.

A glance at the converse picture, which too generally prevails at present both at home and abroad, will serve to put these desiderata in a clearer light. Collections irregularly developed, rich in one direction as opportunity or personal bias may have brought about, meagre or absolutely wanting in specimens of other classes of equal importance; objects of the most heterogeneous nature grouped together for the mere convenience of display; descriptive labels either entirely wanting or only partially affixed at hap-hazard to perhaps insignificant objects, whilst others of far higher interest are left unnoticed. No catalogue, or it may be one twenty years old, entirely out of date and superseded, while the numbers on the objects are at variance with those in the book. No attempt at collateral illustration—the getting of casts or photographs, a matter of high favor only to be obtained by great influence and long negotiation: admission so hedged about with difficulties, open one day, closed the next; to-day free, to-morrow on sufferance, as if the object were to deter rather than invite the visitor. And it is then evident why museums are either mere lounging places for the idle crowd, or kept up for the sole benefit of the refined connoisseur or the scientific few. The former or popular condition of museums is clearly the only one which modern enlightenment will henceforth be inclined to sanction, and however much a sentimental respect for old ways and merely curious connoisseurship may retard those changes in the administration of museums that in almost every country are being loudly called for, it may safely be predicted that in England, at least, the national good sense will insist on every institution supported by the public funds being made to yield an adequate amount of definite instruction to the public in general.

Objections to Popularizing Public Museums answered.

It is often asked, "After all, what practical result is expected to follow from such popular collections?" And it is argued that designers and workmen are more likely to make a wrong than a right use of the beautiful objects set before them; that is to say, they will, at best, simply imitate without a due power of selection, and thus the pedantic eclecticism which already prevails will be still more strongly confirmed. Again, it is objected that the producers of the beautiful original works we now collect and admire had no museums to go to in search of inspiration; that the old goldsmiths of Florence or Augsburg, the majolica painters, enamelers, wood-carvers, and glass painters, had no such methodic collections to refer to as it is now proposed to form; and that if the minor arts are to have any true development in this country, it must be from the same innate and original genius which was the sole mover of old, and which now in a great measure alone animates our painters and sculptors.

These arguments, however, although specious enough at first sight, involve fallacies which it will be no difficult task to unmask, although to follow them out in all their bearings would be beyond the limits of a lecture.

In the first place, then, it is not true that the old artists received no assistance from collections of works of art, and an inquiry into the social condition and method of training of art-workmen in former times would doubtless reveal a state of matters, as regards instructional facilities, entirely to the advantage of the ancient artist.

Although museums, properly speaking, can scarcely be said to have been formed in modern times before the seventeenth century, collections virtually deserving of the name existed in great numbers from a much earlier period. In the middle ages, every abbey and cathedral, indeed almost every parish church, had its treasury, in which the most exquisite works of art were preserved, to an extent of which we can now form but an imperfect estimate, from the diminished contents of the few that remain after centuries of spoliation. Rich men, moreover, of every degree invested their wealth in costly objects in the precious metals, as the only means of investment offering a prospect of

prompt realization. Bullion and precious gems then formed the only real medium of value, and the habits of personal display and pomp of pageantry, so passionate a characteristic of the middle ages, irresistibly prompted the possessors of wealth to display it in the most effective and dazzling manner. Rich cups and salvers, hanaps, coffrets, ewers, jewelry, every object of use or luxury in fact on which the precious metals and gems could be lavished, which would otherwise have lain idle and useless as in their native mines, were accumulated by nobles and princes in an abundance that their descendants at the present day would never dream of rivaling. It will not perhaps be out of place to state, in confirmation of this, that, at the present time, the richest collection in Europe of works apalagous to those we are now endeavoring to collect is actually an ancient royal treasury; the almost inestimable riches of the green vaults at Dresden still occupy the same ancient locality, and are in fact the accumulated hoards of the earlier princes of the royal house of Saxony. By an easy and natural transition the treasures both of the laity and the church became the repositories of every rare and curious, and consequently precious, object—an ostrich's egg, a cocoa-nut, a nautilus shell, or a specimen of Chinese porcelain, an elephant's tusk, or a narwal horn, to say nothing of saintly relics innumerable, things little thought of now, were then curiosities of great actual value, and were immediately mounted and adorned in the most exquisite taste with the most precious materials, presented as offerings at some famous shrine, or deposited in the iron-bound chests of potent seigneurs, to be displayed on state occasions to their curious guests or dependents.

Thus connoisseurship, or the taste for collecting, prevailed as strongly in the middle ages as at present, while there can be no doubt but that artisans and the people generally found little difficulty in gaining access to these collections. The church treasures, we know, were then as now standing exhibitions, accessible alike to the devotees and to the merely curious visitor.

We need but allude to the storied walls of churches and public buildings, to the painted windows, glowing with saintly histories and the richest ornaments; to the armies of statues and innumerable reliefs which adorned the noble edifices of the middle ages: these edifices are still the best museums of high art. How far more powerful must their influence have been when in their first blaze of freshness, complete, where now we find but faded and moldering remains!

Modern mechanical contrivances and the division of labor, moreover, have tended to deaden the taste and intelligence of the artisan, by narrowing the field for their exercise, whilst the exigencies of mechanical processes, and other economical reasons, have imposed fresh restraints on the designer; but these again are strong reasons for the extension of instructional facilities. Moreover, the modern artisan, being virtually debarred from obtaining that distinction which is the meed of recognized personal talent, is now less than ever likely to spend his hours of relaxation in the acquisition of knowledge which, though certain to be of great eventual benefit to him, involves additional and present exertion, while it brings no immediate profit or consideration. Thus, again, the means of study and self-improvement must be brought home to the artisan, or he will scarcely go out of his way to obtain them. And as respects uneducated students making a wrong use of the treasures got together for their instruction, even the power of mere lifeless imitation, which is so much dreaded, can scarcely be acquired without a great amount of valuable historical and technical information accruing at the same time. But on this score it may be roundly said, that the man of dull parts, whatever be his previous training, will in all probability always be an imitator, while the taste and judgment of the gifted student will be chastened and refined, not unduly warped, by the influence of good models. It is an indisputable truth that the ignorant or the so-styled self-instructed artist is always the least original. In short, there is nothing to fear and every thing to hope from the influence of well-chosen and well-arranged Art collections.

Distinctive Character of the Art Museum.

It should first be clearly understood that the Art Museum has no connection with the various other collections grouped with it—the Educational Museum, the Museums of Patent Inventions, of Animal Produce, &c., which, as has been

explained on previous occasions, are distinct and separate collections, having nothing in common except the fact of their temporary juxtaposition under the same roof, and their being administered by the same Department of Government.

There are, however, other national establishments in the metropolis with which our Museum has some analogy, in particular the National Gallery and the British Museum—the one entirely, the other incidentally devoted to the illustration of art; and it will here not be out of place to state, that from the first the acquisitions to the Kensington Museum have been confined to classes of objects not systematically represented in those collections.

The National Gallery at present occupies a well-defined ground with which the Art Museum is little likely to interfere. This institution confines itself to the collection of paintings as monuments of fine art only, while it may be observed in passing, by an anomalous arrangement, the Print Room of the British Museum takes possession of the drawings and cartoons of ancient masters which have served for the production of pictures. The scope of our own Museum does, however, to a certain extent, approximate to that of both these institutions, and one or more instances of this approximation may with propriety be now adduced. In the first place the decorative works of great painters executed in embellishment of architecture or furniture may be specified. As far as this important branch can be illustrated by means of full-sized copies from fresco or other paintings, or reduced drawings of works *in situ*, and likewise by the original sketches and designs of artists for such works, the work is now being done at Kensington, where already a very extensive series is exhibited. Again, the Print Room of the British Museum contains an inestimable treasure of engravings, which, from want of space, it is impossible to exhibit; but there is one section even here, which obviously falls within the province of the Kensington Museum—it is that of engravings of an ornamental or decorative character, the literally-innumerable engraved designs of industrial artists of every speciality, of goldsmiths, armorers, watchmakers, enamellers, embroiderers, cabinet-makers, house-decorators, &c.; these had never been adequately collected at the Print Room, because the scheme of that establishment was to illustrate the history and development of engraving as an art, and not ornamental design exemplified by engravings. In the space of a few months a collection in this speciality numbering several thousand specimens has been got together at Kensington, and a more numerous collection than is probably visible in any other public museum is already arranged and exhibited in glazed frames.

The substantive design of this Museum may be defined as *the illustration, by actual monuments, of all art which is materially embodied or expressed in objects of utility*. This comprehensive scheme obviously includes works of all periods and countries, from the earliest dawnings of art in classical antiquity to the elaborate products of contemporary art-industry; and a historical or chronological arrangement has been especially, though not exclusively, adhered to. It is not desirable to enter on a lengthy disquisition as to scientific methods of arrangement, and a free description of some of the leading sections of the Collection will alone be possible within the limits of this lecture. It will be as well previously to state, however, that in a chronological point of view few of the specimens hitherto acquired actually go further back than the commencement of the middle ages, and for this reason, that in the British Museum the nation already possesses a most extensive collection illustrative of the arts of antiquity; not, it is true, selected or arranged from the point of view of art, but still mainly valuable in that aspect. We have, then, taken up the chain of development at the point where it has been left by that institution, and which may be broadly said to end with the era of Pagan antiquity.

Sculpture.

The decorative arts in immediate alliance with architecture are of the highest importance, and objects of an architectural nature in stone, marble, wood, terra cotta, bronze, &c., under the general head of sculpture, may very properly be first noticed. An enumeration of a few of the leading specimens will, perhaps, be the best mode of illustration. On entering the new galleries now being arranged, the visitor will remark the great chimney-piece in carved stone from

Antwerp. A beautiful cast of the fine quattrocento chimney-piece from Padua, in the Soulages Collection, is erected in the main building, and at the present time a magnificent specimen of the same period is, it is hoped, on its way from Italy. In the same room is one of the finest and most important works extant of the Florentine sculptor, Luca della Robbia; this is the large altar-piece in glazed terracotta representing the Adoration of the Kings. In the iron building is the elaborate stone *retable* or altar-piece from Troyes, in Champagne, and the equally beautiful one in carved oak from the cathedral of St. Bavon, at Ghent; a door, with its architrave, pediment, &c., in marqueterie, from the Hotel de Ville at Antwerp; the complete carved oak paneling of a room, from an ancient house at Exeter. Minor specimens, fragments of architectural works, are, of course, too numerous to specify.

These objects are, moreover, illustrated with drawings, casts, photographs, &c., of similar specimens *in situ*, or in other collections, and already many interesting original designs by ancient artists have been acquired. Among them may be specified the ancient drawings of a chimney-piece, and a garden fountain or pavilion at old Nonsuch Palace, attributed to Zuccherro; an original working drawing, with plans, sections, &c., of a lofty stone tabernacle for the receptacle of the Host by a German architect of the fifteenth century, with many others by ancient artists, both painters, sculptors, and architects. In the category of sculpture also may be mentioned a lavatory or domestic fountain in Istrian marble, upwards of ten feet high, a noble work of the beginning of the sixteenth century, brought from Venice, which is about being acquired; and as a work of an architectonic character, the beautiful pavement of the Audience Chamber of the Petrucci Palace at Sienna, composed of majolica tiles exquisitely painted, with an immense variety of arabesque designs, several hundreds of these tiles, all in fact that remained of the pavement, have been acquired.

Mosaics.

Mosaics form another well-defined section. Here will be found antique Greek and Roman wall and floor mosaics, important fragments dating from the fifth to the fifteenth century, of Italian glass paste mosaics, of which specimens from Milan and Ravenna respectively may be specified, and this section also is well illustrated by original drawings of works *in situ*.

Painted Glass.

Painted glass is represented by an increasing series of original works. First may be noticed a small window of the highest beauty and historical interest, from Torcello, in Italy—this specimen dates from the twelfth century; a large window in three lights, originally brought from Winchester College, one of the very finest examples of English fifteenth century glass; another window, fifteen feet high, in two lights, with tracery complete, from Cologne Cathedral; a window, in three divisions, of French early renaissance glass from Normandy; another in two lights from Belgium; and one of the finest specimens of modern German glass painting may be seen in a fine window executed at the Royal Glass Painting Establishment at Munich. There are also many specimens of old Flemish and Swiss armorial glass, and the latter class is illustrated in a remarkably interesting manner by upwards of fifty original cartoons and drawings by ancient glass painters of the school of Basle, in many instances signed and dated by the artists: of these a large proportion are framed and exhibited along with the specimens of glass. Like the preceding, this section also is being amply illustrated by original drawings and colored engravings of existing monuments of the art, arranged in chronological order.

Decorative Processes.

We will now pass to classes of objects of a less monumental character—decorative furniture, coffers, cabinets, chairs, tables, bedsteads, &c., exhibiting as great a diversity of decorative processes as of periods and styles, beginning with the mediæval works of the fourteenth and fifteenth centuries, and descending to the master-pieces of modern cabinet-work, acquired from the Universal Exhibitions of 1851 and 1855. It should be remarked that while the Collection remained at Marlborough House the confined space did not allow of any great

increase in this section, the specimens being nearly always bulky, but no endeavors are now being spared to make up for former neglect.

Ceramic Section.

The Ceramic section has, on the contrary, from the first been actively developed, and has already conducted in a very marked manner to the advancement in design of British art-pottery. The ancient Italian painted earthenware—the majolica, so striking and beautiful a development of industrial art, has in particular been sedulously collected, and it is doubtful if at this moment so complete a series exists any where else. The art-pottery of Wedgwood is likewise well represented, while the beautiful modern works of Minton and other manufacturers in this country, and of Sévres in France, are illustrated by many of the most costly and extraordinary specimens executed of late years.

Work in Metal, Bronze, &c.

Of objects which may be generally described as works in metal the Collection comprises probably about fifteen hundred specimens. It would be impossible to specify other than a few of the leading sections. First, goldsmiths' work, comprising decorative plate, all kinds of cups, salvers, chalices, ecclesiastical vessels and utensils, ornamental objects in rare and precious materials, such as agates, crystals, shells, cocoas-nuts, &c., elaborately mounted in gold and silver, make a goodly show.

A collection of knives and forks, spoons, and similar utensils, is certainly unique, both as to the number, variety, and beauty of the specimens.

Art-bronzes, especially of the quattrocento and renaissance periods, form another attractive section, in which many striking works might be specified. Decorative arms and armor, lockwork—in the latter division, in particular, is an extensive series of richly-decorated locks and keys—damascening, niello-work, and the processes of chasing, engraving, etching on metals, repoussé work, &c., are illustrated in a great variety of objects of use. Here also drawings and colored photographs, from specimens in continental collections, have been added in illustration, and a special series of original engravings by goldsmiths, watch-chasers, armorers, &c., accompanies the section of goldsmiths' work.

Of jewelry and objects of personal adornment, there are many fine specimens of the mediæval and cinque-cento periods, oriental jewels, and modern examples of the most eminent French jewelers, selected from the 1855 Exhibition.

The section of clocks and watches is still richer, nearly all the remarkable examples from the Bernal Collection having been acquired. Here also should be mentioned a curious series of unique impressions or rubbings from the various ornamental details of watches, and likewise numerous engraved designs by watch-chasers.

Textile Fabrics.

Textile fabrics are, perhaps now for the first time, systematically collected in a public museum. This section, so important and so dependent on ornamental design, is rapidly growing, and already numbers several hundred specimens, among which may be mentioned a numerous selection of rich oriental tissues acquired from the Exhibition of 1851; ancient European examples of stuffs, lace, &c., of every description and period are also by no means wanting.

Ornamentation of Books.

An endeavor is here being made to get together a systematic series of initial letters, vignettes, title-pages, and every description of illuminated and typographical ornaments employed in the decoration of books, from the earliest period of the middle ages to the present day, and likewise of ornamental bindings. Already a collection, calculated to be of great practical use to publishers, book illustrators, binders, &c., has been accumulated; and it is intended, as soon as space and opportunity will allow, to exhibit every specimen. Several hundred cuttings from ancient illuminated manuscripts, which have been cut up at various times by ignorant possessors, from the smallest initial letter to the splendid pages of grand choral books blazing with gold and colors, are already acquired, and here alone will be found a mine of mediæval ornamentation of great value to the student.

From this enumeration it will be evident that very considerable progress has been made towards the formation of a collection worthy of the nation; indeed, the chief work has been the acquisition of specimens. It is to be regretted, however, that this work did not commence earlier; the nation inevitably follows the lead of individuals, but unfortunately it has also been the last competitor in a field in which other countries have long labored. In an economical point of view this is to be regretted, inasmuch as for nearly every work of art now acquired the nation pays in pounds, where, a few years ago even, the price was shillings.

Economical reasons of this kind, however, are really unworthy of serious discussion. This great and wealthy nation can readily afford to spend even five times the pittance it now disburses on works of art; and it will be a national disgrace to us if we are content to allow our collections to remain, as is at present the case, inferior to those of many a third-rate continental State.

Loan Exhibition.

Besides the permanent acquisitions to the property of the nation, the Museum is enriched by a constant succession of works of art, contributed on loan by private collectors. This system, although not entirely without previous example in this country, the British Institution having successfully carried out this practice, as regards ancient pictures, from the beginning of the present century, is a novelty as respects institutions supported by the State, and one not as yet imitated in any other country. Nevertheless, the guarantee which stable and responsible Government institutions were best able to offer to possessors of works of art, was sure to remove their chief objection to parting with their treasures, and as might have been expected, this system of receiving objects on loan for temporary exhibition to the public has been entirely successful. The number of interesting works contributed from all classes of collectors has been limited only by the amount of space that could be allotted for their reception; and following the example of Her Majesty the Queen, who has been alike the earliest and the principal contributor, noble and wealthy connoisseurs have by voluntary offers, rather anticipated than awaited application from us.

Reproduction of Original Works.

Original specimens, whether permanently acquired or temporarily contributed, however, do not form the only attractions of the Collection. Modern processes of reproduction have rendered practicable the most extraordinary and faithful imitations of original works, and without mingling together originals and copies in bewildering confusion, it is intended that these facilities for the reproduction of notable objects in foreign collections or elsewhere should be developed on the very widest scale.

Objects in relief are reproducible by improved processes of molding in plaster, and likewise by the marvelous agency of the electro-deposit system, by which imitations of works in metal may be produced in absolute fac-simile. Photography, likewise, is largely available, and in the beautiful series of copies from the works in precious materials preserved in the collection of the Louvre, and now exhibited in the Museum, may be seen an example of the extraordinary accuracy and truth, amounting indeed almost to illusion, which may be attained by making use of this art in conjunction with the technical resources of water-color painting. Casts, electrotype copies, and colored photographs, will be procured, if possible, from all European collections; and an interesting undertaking, and one which may probably be attempted, would be the grouping together those copies from each continental collection, so that the untraveled student might study and enjoy at his leisure at home, the accumulated art riches of the world.

Another use of reproductions, which has been already alluded to, is to serve as illustrations to the analogous original specimens in our own Collection, near which they would be placed. Judicious illustration of this kind can not fail to be most useful. And, lastly, provincial Museums of Art which, it is to be hoped, will soon arise on all hands, will be largely dependent on reproduction, in default of original examples, which they can never hope to obtain to an adequate extent.

Already for the last three years a collection of considerable extent, being, in fact, a complete epitome of the Museum, has been circulated in all the principal towns of the three kingdoms, and has materially assisted in paving the way for further progress. Provincial Museums may obtain duplicate specimens from our collections at half their original cost, and a systematic plan of sending down rare and costly examples from the central Museum, on temporary loan, to localities where the several specialities of manufacture or design may be benefited by the study of such works, is in full operation.

The Museum at South Kensington, as the most recently created, may, without arrogating any superiority either of direction or design, naturally be presumed to have the greatest share of that expansive spirit of progress, that practical activity which new undertakings naturally engender. It has had the advantage, moreover, in commencing from the first with a definite object in view, but it has ever been regarded as but a portion of a great national whole, an integral part of an imperial and universal art collection, which, dealing with all our national acquisitions in art, irrespective of previous interests or arbitrary schemes, sanctioned though they may be by the weight of years and manifold authorities, will one day consolidate the now scattered and disconnected treasures into a noble unity worthy of this great country. It may be found advisable to consolidate all our national art acquisitions in actual juxtaposition, or a well-ordered scheme may be devised, admitting of a logical classification or theoretical union, whilst an actual severance as respects locality may be allowed to continue; but, however accident or the mature decision of the nation and its rulers may determine, it is hoped that, whenever this great work is seriously undertaken, the South Kensington Museum will be found to be a well-ordered and coherent institution, ready to merge itself without disruption into a grander whole, or else worthy to become that central nucleus around which other establishments may be aggregated. Meanwhile its mission is present and immediate utility, the active collection of works of art, and the complete and unrestricted rendering of them available to the public.

ARCHITECTURAL ART.*

After a definition of the art—derived from its chronological development—a mere building in its simplest and most utilitarian form, through various modifications to combine strength and durability with beauty—"that architecture is *ornamental and ornamented construction*; or, to be more explicit, any building, whatever its purpose or whatever its form, may become an object of architecture by a slight rearrangement or grouping of its parts so as to give some evidence of design, and by the addition of ornament may become as purely architectural as we please; all that is required being that the ornament should be beautiful in itself, should be applied with taste, and be appropriate to the purposes of the building"—Mr. Fergusson traces the history of different national styles, with a view of cultivating a higher taste and skill in constructions of every kind.

Popular Instruction in Architecture by Museums.

The first and most important thing to enable us to do this is a more general diffusion of knowledge with reference to the forms of art that have gone before, and a more correct appreciation of its aim and object.

And this brings me really to the subject of this lecture, namely, the means

* Introductory Address on a National Collection of Architectural Art: By James Fergusson, Manager of Crystal Palace, Sydenham.

by which this knowledge may be best attained and diffused; for it will not suffice that architects or archaeologists should be correctly informed on these matters; the information must be diffused through all classes; and all must lend a hand, either by influence or by practice, to inaugurate this great regeneration of art.

If not the only means, certainly one of the very best, is the institution of architectural museums, provided, of course, that they are established on cosmopolitan and scientific principles, and so as really to fulfill the object for which they are intended.

I am aware that professional architects are sometimes inclined to overlook or despise the advantages to be derived from these museums, as they have passed the stage of instruction at which they are most useful. Most architects travel in their youth, and study the more important buildings of the world on the spot, and they become familiar with plans and sections and drawings of details; all of which tell to them a clearer story and enable them to realize a building more perfectly than any cast or molding or model can do. Such a plate, for instance, as the diagram of the moldings of Heckington Church, is the delight of the professional architect; but not one unprofessional person in a hundred can comprehend what it is all about, whilst a cast of one of those moldings would at once tell a story which all could judge of, and whose beauties and defects all could appreciate. Few, however, except those destined for the architectural profession have the advantage of scientific travel in their youth, and fewer still have leisure in after life to master the technicalities of art, and to make themselves so familiar with the secrets of the craft as to be able to derive either pleasure or instruction from the technical modes of expression which are indispensable for the conveyance of really scientific knowledge. The consequence is that architecture has become the privilege and the exclusive property of a small and limited class of persons, and has consequently been narrowed into the reproduction of some technical or archaeological form of art, rather than becoming the expression of the nation's wants and feelings, which is the only form in which it can be worthy of the nation's care, or of the attention of any man of true intellect or real artistic feeling.

So far as I can see, there is no institution so likely to forward this most desirable object as the establishment of an architectural museum on a proper scale, and with such means and appliances as are now available to the purpose; and if established on a sufficiently broad basis and carried out with a proper cosmopolitan liberality of feeling, it must most materially contribute to the attainment of an object which all lovers of art so earnestly desire.

As in most instances, the French have perceived the desirability of this object before we were even well aware of its importance; and in the collections at the Palais des Beaux Arts and at the Hotel de Cluny, a foundation has been laid for the purpose. The latter, however, can hardly be called a strictly architectural collection, and the other has not yet received that development which must entitle it to a high rank in this *specialité*.

Among ourselves, one of the earliest attempts was that of Sir John Soane, who brought together in his private residence in Lincoln's Inn Fields, a very extensive collection of architectural casts and illustrations, and built for them a gallery, which is certainly about the best thing of the kind that has yet been done; though its effect, it must be confessed, is somewhat marred by the quirks and quiddities which he indulged in, in carrying out his architectural designs. This collection he left to the nation, and though he encumbered the gift, as he did the style, with incongruities which have considerably marred its usefulness, it is still well worthy of a visit from all, and should be most attentively studied by any one who proposes to do any thing in the same direction.

Other private collections have been made, perhaps as extensive and useful as this, but they have been dispersed, and therefore need not now be referred to. It was principally out of the debris of that of Mr. Cottingham that the Architectural Museum in Cannon Row arose, and as far as it went this was a step entirely in the right direction, but like the parent institution it was too exclusively mediæval to perform, even in a limited degree, the functions of an institution to improve the taste of the nation, though, located as it now is under

the same roof with the other collections of this Department, it assumes a character of usefulness it never could have attained in its original locality.

The next great public effort that was made was at the Crystal Palace, and in its peculiar line of restoration it is by far the most complete and perfect that has ever yet been attempted. No one is less inclined than I am to find fault with what has been done there. It has filled a great void in the most perfect manner, and supplied a great want, though not exactly the want which was most particularly felt by the student of architectural art.

When the various casts and models were first brought to the Palace, and were arranged and labeled on the shelves of the workshops—the capitals in one place, the pinnacles, the moldings, the foliage, the canopies, &c., each in its own class and according to its date, they were far more interesting to the student, and conveyed far more information, than they do now that they are pieced into a modern design and all made to fit each other, and toned together so as to lose the greater part of their own distinctive individuality. By reference to the hand-books, it is true, you may disintegrate the greater part of the design, and if you can forget the color and the repairs and restorations, truth may be arrived at, at last. But this is a painful, painstaking process, and the very reverse of what is wanted.

Notwithstanding this, there is no doubt but that the Architectural Courts at the Crystal Palace have done a great deal of good in awakening attention to the subject, and thus conveyed to many an amount of instruction they never would have imbibed had it not been presented to them in the enchanting form which it wears under the crystal roof at Sydenham. Besides this the Alhambra Court and the Pompeian House are reproductions so complete and perfect as to give the best possible idea of the two objects they represent, and a far better idea of the two styles than can be obtained by any other means, except a visit to the places themselves; and the other Courts, though not reproductions, are most pleasing reminiscences of the various styles whose names they bear.

Details of a Museum of Architecture.

The museum which I am now referring to ought, in the first place, to consist of a collection of casts of architectural ornaments, not only of one style, but of every style of art, certainly not every ornament, but only a selection of the best, and of those most typical of the style. Color should never be introduced except where it now actually exists, and only to that extent. I need hardly add that they must be arranged chronologically, and in such distinct groups as to prevent any confusion amongst them. This will form, so to express it, the only full-sized or original part of the Museum. But if the collection stopped here, however interesting it might be to the architect or stone carver, it would be of little use to the general student, and models of the entire buildings, or at least of those parts to which the ornaments belong, must be supplied; for no architectural detail is of any value except with reference to the purpose for which it is used, or its appropriateness to the place where it is found. Where models are not attainable, drawings, and especially photographs, must form part of the collection. From its accuracy and truthfulness the latter forms a most invaluable adjunct to such a museum as this, and supplies a desideratum which a few years ago was practically unattainable, but without which such a collection would lose one-half its value.

One further adjunct is required, which is a good Architectural Library. With these the student of the fine art architecture may master the subject. He may see what form in art is most pure and elegant in itself; and from all being reduced to a common denominator—the plain, unvarnished plaster cast—his judgment will not be biased by the religious enthusiasm so inseparable from the precincts of a cathedral, or by the stirring associations which surround the Forum or Capitol of Rome. He will be able to form his own judgment, not only as to the intrinsic beauty, but also as to the appropriateness of any particular style; and this, as I have already explained, is the true province of the architect in his quality of artist.

But, as I have also attempted to explain, there still remains the more material but equally essential qualification of "good building," and the application of common sense to the arrangement and construction of buildings; and a Na-

tional Museum would not be complete without also comprehending this great department. This should consist of a selection of the best building materials, with such information as may be admissible with regard to their properties, and more especially of any new inventions, or new applications of older forms; and this again, like the fine art branch, should be accompanied by models of roofs, floors, foundations, and other difficult parts of construction, more especially those which are of importance in a sanitary or fire-proof point of view. These two great divisions, placed side by side, would convey a mass of information which has never yet been accessible to the public, and convey it in a form which all could comprehend and make use of.

The Institute of British Architects, it is true, possesses a fair library, a few ornamental casts, some models, and a few specimens of building materials. The collection, however, is far too small to be considered as a representation of the art, and there is no hope of their ever being able to extend it so as to make it generally useful or interesting to the public, for the simple reason that it would never pay.

Numbers may be attracted by the pleasing pictures of the Crystal Palace, but the votaries of plain, unvarnished truth are too few to make a paying public, and in the present state of society and of feeling towards architectural art, people are by no means inclined to take much trouble, still less to pay for such information as such a museum would afford, and it is only a Government that can do it, and they must look to the improvement in taste and general diffusion of knowledge for their reward, and certainly not to the pecuniary success of the undertaking.

The Architectural Museum, formerly in Cannon Row, now in the Kensington Museum, has a valuable collection of casts derived mainly from mediæval art. Placed where it now is, its value is immensely increased, for besides this, there is a collection of models prepared for Mr. Nash, brought from Hampton Court, and a still more valuable collection of models of the works of Sir Christopher Wren, brought from St. Paul's and Westminster Abbey, and a variety of miscellaneous specimens, which only require completing, and the gaps filling in, to make this department a reality, and a potent means of conveying instruction of the best class.

In the building department, also, a great deal has been done. Numerous specimens of bricks and terracotta of various forms, and adapted to various purposes, have already been brought together, and the collection of models is rapidly increasing; so that in every point of view the work may be said to be fairly in hand, and with the energy displayed in every department of this institution, and the means at their disposal, there can be no doubt but that an Architectural Museum will shortly be brought together on a scale worthy of the nation.

All that is now wanted is a well-digested scheme, and the exercise of a sound discretion in regard to what should be admitted and what rejected. An "omnium gætherum" of every sort of thing would not only be useless, but would defeat its own object, by rendering the search after any peculiarity or point of information so fatiguing that few would attempt it; besides that it would take up such a space that the scheme would break down under the immensity of its own requirements.

The great guiding principle should be that nothing should be admitted to the Fine Art Department but what is conducive to the diffusion of a correct knowledge of architectural art, and to the general improvement of taste in these matters; and nothing into the more utilitarian department which is not conducive to a sound knowledge of construction, or promises to be advantageous in a utilitarian point of view.

If these principles are kept in view, selection carefully applied, and rejection sternly enforced, among the thousands of specimens which are sure to be offered to an institution like this, it is almost impossible but that in a few years we must have a museum of architectural art worthy of the nation; and if the Government will only support it as they ought to do, they will, through the medium of one of the most important of the Fine Arts, do more to improve and elevate the taste of the people of England than by any other means which, so far as I know, are at present available for the purpose.

EDUCATIONAL MUSEUM.

The EDUCATIONAL MUSEUM at South Kensington originated in the International Educational Exhibition held at St. Martin's Hall, in London, in the summer of 1854, under the auspices of the Society of Arts. The members of the Society particularly active in this enterprise were Mr. Harry Chester,* the Vice-president, and the Secretary, LeNeve Foster.

The objects presented were classified as follows:—

- I. Buildings—Models and plans in detail.
- II. Fittings and Furniture.
- III. Apparatus and Materials.
- IV. Books, Maps, Prints, and Diagrams.
- V. Results.
- VI. Models, Drawings of Projects, and Suggestions of School Improvements.

I. BUILDINGS.

Plans, Models, Drawings, Photographs, and Descriptions of complete sets or portions of Buildings, with their appurtenances for educational purposes, however designated, &c., for

1. Schools—Elementary—for boys or girls, or for both—Infants—for towns, villages, or rural districts.

Superior—Training—Industrial—Ragged—Reformatory.

2. Schools—for the Blind—Deaf-mute—Infirm in mind or body.

3. Mechanic Institutes—Lecture-rooms—Libraries, &c.

4. Special Classes in Teaching—Drawing, Practical Science, Agriculture, Chemistry, Mining, Naval or Military Science and Practice, &c.

Details of Construction—Material—Drawings—Ventilation—Lighting.

School-rooms—Dormitories—Lavatories.

Lectures—Class-rooms.

Dining-halls—Kitchens.

Teachers' houses, and grounds.

Playgrounds and Gymnastic Apparatus.

Closets and Urinals—Baths.

II. FITTINGS AND FURNITURE

Plans, Models, Photographs, Sketches, &c.

Seats and Desks for Teachers and Pupils.

Work-table and facilities for Needlework.

Galleries for Infant Classes.

Curtains for separating Classes.

Clocks, Bells, and Whistles.

Stoves, and other fixtures for heating, &c.

Ornaments for schools—Casts, Pictures, Moral Lessons.

* HARRY CHESTER, Vice-President of the Society of Arts, and Chairman of the Council, (youngest son of Sir Robert Chester, of Herts, Master of Ceremonies under Queen Victoria,) was born Oct. 1, 1806, educated at Christ Church, and Westminster, and for a few terms at Trinity College, Cambridge. He was clerk in the Privy Council Office, and assistant secretary in the Education Office till 1838. In 1851 he proposed to the Society of Arts to make strenuous efforts "to develop and affiliate with the Society, all Literary, Scientific, and Mechanic Institutions." This was effected in May, 1852, on the basis which still exists, by which 390 institutions are brought into connection with the Society, and a system of examinations inaugurated which has extended from 32 candidates in 1856 to 2,000 in 1868. In 1854 he was mainly instrumental in bringing about the Educational Exhibition of that year, the establishment of the Educational Museum now in connection with the Science and Art Department at South Kensington, the inquiry into the state of musical education in England in 1860, and the inauguration of the Fair Committee, and the Animal Product Museum at South Kensington. He died Oct. 6, 1868.

III. APPARATUS.

Specimens or Samples, or Drawings of Apparatus for
 Drawing, Penmanship, Music, Needlework.
 Toys and Games for Infant Schools.
 Music—Choral-singing—Instruments—Music-pipes and Tuning-forks.
 Music-books, Paper and Cards.
 Practical Science and Common Things.
 Scales and Weights—Measures of different denominations.
 Mechanical Powers—Alvord's Machine—Machinery moved by steam,
 water, and muscular power.
 Meteorological Observation—Thermometer, Barometer, &c.
 Optics—Microscopes—Telescopes—Magic Lantern, &c.
 Surveying, Levelling, &c.
 Chemistry, in its elementary forms and applications.
 Carpenters' Tools.
 Natural History—Botany—Zoölogy—Mineralogy—Geology.
 Architectural Models.
 Domestic Economy and Social Science.

IV. BOOKS—MAPS.

Text-books for scholars in the studies of
 Elementary Schools.
 Secondary " "
 Superior " "
 Supplementary "
 Science and Art of Teaching.
 School Management and Discipline.
 Special Classes—the Blind, Deaf-mute, &c.
 Books of Reference—Dictionaries, &c.
 Maps and Atlases.
 Wall-maps—General—Physical—Historical.
 Atlases—for Pupils, and the whole School.
 Relief—Geographical.
 Prints and Diagrams—for Teachers—Lectures.
 Sheet Tables—Class-rooms and Pupils.
 Decorative and Fine Arts.

V. RESULTS.

Specimens of work done in the school.
 Needlework.
 Drawing and Coloring.
 Penmanship.
 Mapping.
 Book-keeping.

VI. IMPROVEMENTS.

Objects, Models, or Diagrams of desirable improvements in the whole field of School Economy.

The Exhibition was opened by Prince Albert, President of the Society of Arts, on Tuesday evening, July 4, with a large attendance of prominent teachers and professors, and men eminent in science and public affairs, and continued every day and evening, until Saturday, Sept. 2.

During the exhibition, a series of lectures, more or less formal, followed by free discussion, was delivered in the afternoon and evening—of which reports were published in the Journal of the Society of Arts for August and September. The opening lecture was given by Dr. W. Whewell, of Trinity College, and

among the lecturers were Cardinal Wiseman, Sir Charles Lyell, Sir Charles Eastlake, Professors DeMorgan, J. S. Howson, Neil Arnott, R. G. Latham, W. B. Carpenter, Francis Trench, T. R. Jones, Thomas Huxley, James Booth, Baden Powell, John Hullah, J. P. Norris, W. A. Shields, Henry Barnard, Jelinger Symons, C. Marriott, C. H. Bromley, and others, on almost every subject which was illustrated in the Exhibition. Reports on the Results of the Exhibition were submitted by M. Milne Edwards to the French Government; by Prof. Siljeström and Prof. Nissen to the Swedish Government; and by Mr. Barnard, to the People of Connecticut, and to the American Association for the Advancement of Education at Washington, in December, 1854. The latter contained a Plan for a National Educational Museum at Washington, under the auspices of the Smithsonian Institution, or the American Association for the Advancement of Education.

In the progress of the Exhibition, a Deputation from the Council of the Society of Arts, consisting of Lord Ebrington, Mr. Harry Chester, and the Secretary, had an interview with Lord John Russell, and subsequently by request submitted to the Chancellor of the Exchequer, a written memorandum on the Government availing itself of the present collection by gift and purchase, as the nucleus of a National Museum of Education. The Society offered to hand over such portions as were its own property, and to procure similar transfer from exhibitors, on condition that the Government should provide for the safe custody, due arrangement and exhibition of the collection, to be kept up and added to from time to time. As a motive for immediate action on the part of the Government, the memoranda closes with this paragraph: "The Society has reason to know that a public functionary of the United States has offered to purchase one of the largest collections in the Exhibition, and it is thought probable that similar offers may have been made to other exhibitors. It would scarcely be creditable to this country that when one of its Societies has brought together from all parts of the world a valuable collection of interesting and instructive objects, instead of means being found for retaining it permanently in public use, a foreign Commissioner should be allowed to purchase the collection and transport it to the other side of the Atlantic."*

The above considerations and conditions met with the approval of the Government, a favorable reply was returned to the proposal of the Society, the sum of 2,000*l.* was paid over to the Committee to make additional purchases, and since 1860 the Collection of Educational Appliances has constituted part of the South Kensington Museum, and attracts annually a large number of visits from teachers and schoolmen, from all parts of the kingdom and from other countries.

* Within the first week after the opening of the Exhibition, the Commissioner from Connecticut (Henry Barnard) informed Mr. Harry Chester, Vice President of the Society of Arts, that as far back as 1838 he had begun a collection of Text-Books, School Apparatus, Laws and Official Regulations respecting Schools of every grade and Education generally in different countries; plans of school-houses, school furniture, and material appliances of instruction, as well as treatises on the history, principles and methods of teaching, and on school management and discipline generally; and that it was his desire and intention to avail himself of this gathering of school men from different countries, to add to this collection by exchange and purchase. With this view he had already introduced the subject, with every prospect of success, to his friend Prof. Siljeström, of Sweden, and to Mr. Nissen, of Norway, and Mr. Fogg, of Denmark; but before proceeding further, he desired to know the intentions of the Committee charged with this Exhibition, and of the Committee of Council on Education, for he should be sorry to have this opportunity of establishing at once a permanent International Exhibition lost or marred by any action of his which could not compass the whole collection. Upon this hint Mr. Chester acted at once.

NATIONAL PORTRAIT GALLERY.

In 1857 a royal commission was appointed to inaugurate a National Gallery of Portraits of men eminent in literature, science, art, and history, civil or military, of Great Britain, and an item of several thousand pounds appears in the annual appropriations to meet the expense. This Gallery, originally attached to the National Gallery, is hereafter to be associated with the Kensington Museum.

NATIONAL PORTRAIT EXHIBITION.

THE NATIONAL PORTRAIT EXHIBITION, which took place in the Arcades overlooking the Royal Horticultural Society's Gardens, in the spring and summer of 1866, 1867, and 1868, under the auspices of the Committee of Council on Education, was suggested by the Earl of Derby, in a letter addressed to the President of the Committee: "I have long thought that a National Portrait Exhibition, chronologically arranged, might not only possess great historical interest, by bringing together portraits of all the most eminent contemporaries of their respective eras, but might also serve to illustrate the progress and condition, at various periods, of British Art"—and at the same time tendering any portraits from his collection at Knowsley. The suggestion was promptly accepted, and the first Exhibition, containing 1,031 portraits, was held from April to August, in 1866, which was visited by over 73,000 persons. A second Exhibition of 866 portraits, covering the period from the Revolution of 1688, when the first ended, down to the beginning of the present century, was held in 1867, and was visited by 80,000 persons; and the third and final Exhibition was held in 1868, containing the portraits of all deemed worthy of admission or whose portraits were obtainable, who were living in 1800, or since, but had ceased to live in 1868, in all about 1,200 persons, of whom between 700 and 800 were most distinguished men and women, painted by 200 of the best artists of the century. To the pictures belonging to the present century, in the third Exhibition, was added a supplementary collection of 320 belonging to former periods, but not included in the former Exhibitions. Among these were 9 by Holbein; 6 by Kneller; 9 by Vandyck: 8 by Lely; 27 by Gainsborough, and 34 by Reynolds. The three Exhibitions were of unique worth and interest, and their study by over 200,000 people must have deepened in almost living freshness the impressions of many of the great characters in English literature, art, and public service. Of such of these rare and valuable portraits as were thought useful for instruction in the Schools of Art, photographs were taken by the Department of Art and Science.

Note.

In both of the above exhibitions, the permanent and the transient, we have examples of what can be done at Washington; the first in Memorial Hall of statuary, into which the old Representative Chamber has been converted; and the last in the Corcoran Gallery of Arts, which can in this way be appropriately inaugurated, and its extensive walls be covered in an attractive way, sooner than by any other form of exhibition for several years, to come. Such an exhibition would deserve, and probably receive, the aid of the National Government and State authorities.

II. EXISTING ORGANIZATION AND RESULTS—1869.

[Summary of the nature and amount of assistance afforded by the Science and Art Department to the Industrial Classes in procuring instruction in Art.]

I. ART DEPARTMENT.*

I. A sum of money is voted annually by Parliament for the purposes of Science and Art (£171,000 in 1869).

II. This sum is administered by the Science and Art Department.

III. The head of the Education Department, of which the Science and Art Department is a branch, is the Lord President of the Council, assisted by a member of the Privy Council, who is called the Vice-President of the Committee on Education, and who acts under the direction of the Lord President, and for him in his absence.

IV. A portion of the sum voted is set apart for the promotion of Instruction in Art in the United Kingdom.

V. The object of this grant is to promote instruction in Drawing, Painting, and Modeling, and Designing for Architecture, Manufactures, and Decoration, especially among the industrial classes.

VI. To effect this object, the Department will give aid towards the teaching of Elementary Drawing in Schools for the Children of the Poor; towards the teaching of Drawing in Night Classes for Artisans; towards instruction in Art in Schools of Art; and towards the Training of Art Teachers. The Collection of Decorative Art at South Kensington is also made available for the purposes of instruction in Schools of Art.

AID TO SCHOOLS FOR THE POOR.

1. A School for the Poor is one established to promote the education of children belonging to the classes who support themselves by manual labor.

2. The Department will encourage the teaching of drawing in such schools, under the following regulations, provided that the children are instructed in drawing by teachers holding certificates of the 2d or 3d grade granted by the Department.

3. A payment of 1s. will be made for every child who gives, under examination, satisfactory evidence of having been taught drawing.

4. The payment will be raised to 2s. for every child showing proof of proficiency in drawing.

5. The payment will be raised to 3s. for every child who may excel in the examination.

6. Children who have previously passed in all the subjects of the 1st grade may be examined in the 2d grade. A payment of 5s. will be made on account of every child who may "pass" in one or more exercises of this grade.

7. A payment of 10s. will be made on every exercise of the 2d grade satisfactorily worked at an annual examination by a pupil-teacher of the School who has been taught drawing in the School.

8. A payment of 1l. will be made for conducting the annual examination, provided twenty children give satisfactory evidence of having been taught drawing.

9. All payments will be made to the Managers towards the cost of the maintenance and instruction of the Drawing Classes in the School.

10. A small prize will be given to every child whose drawing may reach the required standard of excellence,† and a prize to every pupil-teacher who may reach the required standard of excellence.

11. The Department will determine the number of payments to be made, and prizes to be given, annually, by means of Examinations of a *very elementary character*, called of the 1st Grade, in Free-hand Drawing from Copies, Free-hand

* From the Directory of the Science and Art Department—revised in 1869—Notes and Forms omitted.

† Prizes—The First Grade will consist of a drawing board and T square for success in Free-hand, a set of Compasses for Geometry, and a box of colors for Model Drawing.

Drawing from Models, and in Practical Geometry, and of a more advanced examination, called of the 2d Grade, in Free-hand, Geometric, Perspective, and Model Drawing.

As respects all awards of payments and prizes, the Department will be the sole judge, and will not enter into correspondence respecting its decisions.

12. These examinations will take place in the month of May, and must be conducted by the Local Committee, or Managers of the School, who must undertake—

a. To provide a room or rooms of sufficient size to carry out the examination according to the detailed regulations under that head.

b. To send in to the Secretary of the Science and Art Department, before the 14th of April, a statement of the number of children to be examined in each subject of the 1st grade, and of pupil-teachers and children to be examined in the 2d grade; to be responsible for conducting the examination; to give out the examination papers which will be sent for that purpose; to see them fairly worked according to the detailed regulations in the presence of at least two of their number; to send the worked papers, under seal, by the first post after the examination, to the Secretary of the Science and Art Department.

c. To certify that the School is one established for the education of children belonging to the classes who support themselves by manual labor, and that the children have been instructed by a person holding a certificate from this Department.

d. That one member of the Committee be appointed to act as Secretary, through whom the correspondence with the Department on the business of the School will be carried on.

e. That the School shall be open at all times to the visits of the officers of the Science and Art Department.

13. The Department will give aid to the extent of 75 per cent. towards the purchase of examples of suitable character.

14. Examinations under the above regulations may be held in Schools where Drawing is taught by persons who, though not fully certificated, have passed successful examinations in either Free-hand, Geometric, or Model Drawing of the 2d grade. In such schools, payments will be made only on account of children instructed in the subjects in which the teacher has passed, and not on account of the instruction of pupil-teachers, or children examined in 2d grade.

AID TO TRAINING COLLEGES FOR TEACHERS.

Annual examinations, in drawing, are held at each of the normal schools under inspection, some time in November, in all or any of the following exercises, for which the candidate may not have been registered as successful by the Department of Science and Art since the 24th of February, 1857:—

1. Drawing free-hand from flat examples.
2. Linear geometry by aid of instruments.
3. Linear perspective.
4. Shaded drawing from objects.
5. Delineation of large letters, numbers, diagrams, and other objects on the blackboard. [*This exercise, No. 5, can be performed only at a Normal School, as part of the November Examination. Acting Teachers, who wish to perform it, must attend one of those examinations. Students, who wish to perform it, must do so either before the Art Inspector in November of their first year, or before Her Majesty's Inspector (as part of their class teaching) in their second year. Students can not perform it in November of their second year before the Art Inspector.*]

The value of the exercises is marked, and the marks carried to each candidate's total, for a certificate of merit.

A payment of 2*l.* is made to the authorities of the college on account of every resident student who completes his certificate of the 2d grade, a deduction of 10*s.* being made from this sum on account of each of the required exercises which may have been passed by the student previous to his admission to the college. This payment is contingent on the employment of a teacher holding the Department's certificate of qualification to give instruction in drawing.

AID TO NIGHT CLASSES.

1. A Night Class is a class for instruction in Elementary Drawing, held after 6 P. M., to which the public is admitted on payment of fees within the reach of persons who support themselves by manual labor.

2. The Science and Art Department will give aid to such classes when conducted under the direction of a Local Committee of not less than five well-known responsible persons, and instructed by a teacher or teachers holding the certificate of the Department for Elementary Drawing, called of the 2d grade, or the Art-master's certificate, called of the 3d grade. One member of the Committee must be appointed to act as Secretary, through whom the correspondence with the Department on the business of the Class will be carried on.

3. Night Classes may be held in Schools of Art, Mechanics' or Literary Institutions, National or other Public Schools, or in any Educational Institution.

4. The Department will pay annually to the Local Committee or Managers of such Classes the under-mentioned sums on account of the instruction of artisans,* teachers, or their children above 12 years of age, viz. :—

a. Ten shillings for every exercise in Free-hand Drawing from the Flat, Practical Geometry, Drawing from Models, or Perspective, satisfactorily worked in a given time by an artisan or teacher who pays fees for being taught.

b. For every artisan or teacher who shall submit satisfactory works executed in the class during the previous year, in Drawing from flat examples; Mechanical or Architectural Drawing; Drawing from Geometric Models, Objects of General Utility, or Casts of Ornament; or Drawing Flowers and Foliage from Nature, a sum in proportion to the works sent up, but not exceeding 15s. for any one artisan or teacher.

5. A payment of 2l. will be paid to the Managers of Night Classes in Mechanics' Institutes and National Schools, or other schools for the poor, for conducting an annual examination of ten persons (artisans) and upwards, provided the detailed instructions for the conduct of the examinations be strictly carried out.

6. Prizes of the 2d grade will be given to such students, whether artisans, teachers, or of other classes, as excel in the examinations; and of the 3d grade to such students as execute highly meritorious works of the classes named in clauses 3 b and c.† The degree of success for which a prize will be awarded will be determined by the Department from year to year.

7. The Department will determine the number of the payments to be made

* Definition of artisans :—1. Artisans or operatives in the receipt of weekly wages, supporting themselves by their own manual labor, or the children of the same not earning their own livelihood.

2. Persons who, though paid at longer intervals than a week, or for piece work, support themselves by their own manual labor.

3. Persons not supporting themselves by manual labor, but being of the same means and social level as those who do, such as small shopkeepers (having petty stocks, and employing none but members of their own family), and small tradesmen (not employing apprentices), village carpenters and the like, policemen, coast-guards, &c.

4. Persons not supporting themselves by manual labor, but such as it would be unreasonable to expect to pay the fee of middle-class students, as some description of clerks, shopmen, &c.

5. No payments will be made on account of any artisan as above defined who is assessed to the income tax.

† These prizes will consist of books, instruments, &c., which may be selected by the student :—

For the 2d grade, for success in Practical Geometry :—

1. Burchett's Practical Geometry.
2. Burchett's Perspective.
3. Purkett's Projection of Shadows.
4. Stanley on Instruments.

For success in Free-hand, Perspective, or Model Drawing :—

1. Box of Mathematical Instruments.
2. Cottman's Pencil Outlines.
3. Drawing Board, T Square, and Angles.
4. Worsum's Analysis of Ornament, and Lindley's School Botany.
5. Box of Water Colors.
6. Cottman's Sepia Landscapes.
7. Box of Crayons.
8. Burchett's Practical Geometry, and Burchett's Perspective.

under clause 3 *a*, and the prizes to be given by means of Annual Examinations of an elementary character, called of the 2d grade. The payments and prizes under clause 3 *b* will be determined by an annual inspection in London of the works of the various classes named.

As respects all awards of payments and prizes, the Department will be the sole judge, and will not enter into correspondence respecting its decisions.

8. The Local Committee or Managers of the Night Class must undertake—

a. To provide a room or rooms for the meeting of the class, of sufficient size to carry out the examination in accordance with the detailed regulations on that head.

b. To engage a certificated teacher, to keep registers of the students' attendances, and to be responsible for the general conduct of the class.

c. To send in to the Secretary of the Science and Art Department before the 10th of February, a statement of the number of students to be examined in each of the subjects of the 2d grade. The Examination will take place in March.

d. To be responsible for conducting the examinations; to give out the examination papers which will be sent for that purpose; to see them fairly worked according to the detailed regulations, in the presence of three of their number (the presence of two members of the Committee will be sufficient when fewer than ten students are under examination); to send the worked papers, under seal, by the first post after the examination, to the Secretary of the Department.

e. To admit for examination candidates not connected with the class who may desire to present themselves.*

f. To transmit to the offices of this Department for inspection, on or before the 9th of April, the works of students in the various classes named in ¶ 3 *b*, on account of whose instruction payment is claimed, or who compete for prizes.

The Department will pay the carriage of works sent up which are within imperial size, i. e., 22 in. by 30, and the cost of cases for the transmission of these works, on the receipt of proper vouchers.

g. That the Secretary and two members of the Local Committee shall certify that the students on account of whose instruction payment is claimed, are teachers or artisans within definition given on previous page, and that they have been instructed by teachers certificated by the Department in accordance with ¶ 2, and that the payments received from the Department shall be devoted to the maintenance and instruction in drawing of the class.

h. That the school shall be open at all times to the visits of the officers of the Science and Art Department.

i. To be responsible for the safe custody of all the examples, casts, &c., purchased by the aid of the Department.

k. To report any changes in the hour of meeting of the class, constitution of the committee, teachers, or particulars of importance.

9. Grants of 75 per cent. will be made towards the purchase of examples selected by the Managers from lists approved by the Department.

AID TO SCHOOLS OF ART.

1. A School of Art is a room or rooms devoted wholly to instruction in Art, where examples of Art are always open for study and inspection, and where the

For the 3d grade, for meritorious works:—

Painting Popularly Explained.

Scott's Half-hour Lectures on Art.

Worrum's Lectures of the Academicians on Painting.

Duppa and De Quincey, Lives of Michael Angelo and Raphael.

Timb's Anecdotes of Painting.

Small Set of Photographs from Raphael Cartoons; in portfolio.

Ruskin's Elements of Drawing.

Crowe and Cavalcaselle on Flemish Schools of Painting.

Bradley's Elements of Geometry, Part 1.

Bradley's Elements of Geometry, Part 2.

Set of 12 Photographs from Raphael Drawings; in portfolio.

* A fee of not more than 2s. 6d. may be charged on each applicant for examination who is not a student in the class, to reimburse any extra expenses the Committee may be put to in providing a room.

Managers employ a teacher who has taken an Art teacher's certificate of the 3d grade.

2. The Science and Art Department will aid the instruction given in Schools of Art to artisans and teachers, when under the direction of a Local Committee of not less than five well-known responsible persons, and instructed by teachers holding one or more Art certificates of the 3d grade, provided Day Classes are held, and that artisan Night Classes meet under the instruction of the master at least three times in each week, for two hours, *in rooms approved by the Department.*

One member of the Committee must be appointed to act as Secretary, through whom the correspondence with the Department on the business of the School will be carried on.

3. The following payments will be made to the Local Committee on account of students who are artisans or teachers:—

a. Ten shillings for every exercise in Free-hand Drawing from the Flat, Practical Geometry, Drawing from Models or Perspective, satisfactorily worked in a given time by an artisan or teacher who pays fees for being taught.

b. On account of every artisan or teacher who shall submit satisfactory works executed in the School during the previous year, in Drawing from flat examples; Mechanical or Architectural Drawing; Drawing from Geometric Models, Objects of General Utility, or Casts of Ornament, or Drawing Flowers and Foliage from Nature, a sum in proportion to the works sent up, but not exceeding 15s. for any one artisan or teacher.

c. On account of every artisan or teacher who shall submit satisfactory works* executed in the school during the previous year in Drawing, Painting, Modelling, or Designing for Architecture, Manufactures, and Decoration, belonging to classes not included in clauses 3 a and b,* a sum in proportion to the works sent up, but not exceeding 20s. for any one artisan or teacher.

d. On account of Free Studentships, a payment of 3*l*. for every artisan, being a draughtsman, designer, modeler, or handicraftsman, who shall be recommended jointly by the Local Committee and by the Department's examiners, and who shall submit satisfactory works under clause c.

e. Fifteen pounds for an Art pupil-teacher in every school in which twenty artisans are satisfactorily taught; and thirty pounds in every school in which fifty and upwards are so taught, for two Art pupil-teachers.†

f. Five pounds for every student, being an artisan or designer, trained in the School of Art who shall obtain a National Scholarship in the National Art Training School.

g. Ten pounds for every certificate of the 3d grade taken at the annual examination in London by an artisan or teacher trained in the School of Art.

h. Ten pounds for keeping the necessary registers of students, and forwarding, at the appointed time and on the prescribed form, an annual report of the proceedings of the School, and holding an annual examination. This payment is contingent on the holding artisan night classes three times a week for forty weeks, and on the transmission of works to the National Competition.

4. Bonuses, consisting of one sum of 50*l*.; three sums of 40*l*.; five sums of 30*l*.; ten sums of 20*l*.; twenty sums of 10*l*.—will be awarded to the headmasters of Schools of Art in which the results of instruction, as tested by the examinations of the Department, shall be most satisfactory.

5. In Schools of Art conducted satisfactorily, and where artisans are satisfactorily instructed, grants will be made to enable the masters to visit the South Kensington Museum, and other Metropolitan Institutions, in order that they may acquire, for the benefit of their students, a knowledge of the latest progress made in those educational subjects which affect the schools.

6. Special grants of works published under the sanction of the Department, and of other examples, will be made from time to time to such schools as have suitable premises for exhibiting and protecting them, and for their effective use as means of instruction.

* By satisfactory works must be understood works well executed from examples of a good class in the section of study through which the student is passing.

† Any artisan who passes a 3d Grade exercise, or sends satisfactory works under clause b or c, will be considered satisfactorily taught.

7. Prizes will be given to students of all classes who excel in the examinations of the 2d grade, and to students who send up works of great merit in the classes named in clauses b and c, ¶ 3.* The degree of success for which a prize will be awarded will be determined by the Department from year to year.

8. The Department will determine the number of payments to be made under clause 3 a, and prizes to be given, annually, by means of examinations of an elementary character, called of the 2d grade. The payments and prizes under clauses 3 b and c, will be determined by an inspection in London of the works of the various classes named.

9. As respects all awards of payments and prizes, the Department will be the sole judge, and will not enter into correspondence respecting its decisions.

10. The Local Committee, or Managers of the School of Art, must undertake—

a. To provide a room or rooms for the meeting of the classes, and a place of sufficient size to carry out the 2d grade examination in accordance with the detailed regulations on that head.

b. To appoint, and when necessary, dismiss, a certificated Art Master, and to be responsible for the general conduct of the school.

c. To be responsible for the safe custody of all examples, books lent by the Department, or purchased by its aid.

d. To send in to the Secretary of the Science and Art Department before the 10th of February, a statement of the number of students to be examined in each of the subjects of the 2d grade. This examination will take place in March.

e. To be responsible for conducting the examination; to give out the examination papers which will be sent for that purpose; to see them fairly worked according to the detailed regulations, in the presence of at least three of their number; the presence of two members of the Committee will be sufficient when fewer than ten students are under examination; to send the worked papers, under seal, by the first post after the examination, to the Secretary of the Department.

f. To admit for examination candidates not connected with the school who may desire to present themselves.

g. That the school shall be at all times open to the visits of the officers of the Science and Art Department.

h. To transmit to the offices of this Department for inspection, on or before the 9th of April, the works of students in the various classes named in ¶ 3, on account of whose instruction payment is claimed, or who compete for prizes. Models in clay or plaster are only to be transmitted when of great excellence, and for the National Competition, when they must be in low relief and of imperial or half imperial size.

i. That the Secretary and two members of the Local Committee shall certify that the students on account of whose instruction payment is claimed are teachers or artisans within the definition previously given; that they have been instructed by teachers certificated by the Department in accordance with ¶ 2; and that the payments received from the Department shall be devoted to the maintenance and instruction of the School of Art.

k. To make an annual report, on the prescribed form, of their proceedings to the Science and Art Department.

11. The best works in clause c, ¶ 3, sent up for examination, will be selected to enter into a National Competition between the Works of all the Schools of Art in the Kingdom, and medals and prizes will be awarded to those students who execute the most meritorious of the competing works.†

12. The prize list will include ten gold medals, distributed as follows:—

One gold medal for the best study from the Antique in chalk or monochrome. *This study must be from a single figure in the round, and must be executed within the dimensions of an imperial sheet.*

* These prizes will consist of works of art, books, instruments, &c. No examples will be prescribed for prize drawings, but prizes will only be awarded to works executed from examples of a sound and useful character.

† No examples will be prescribed for competition, but the prizes awarded will be so distributed as to encourage students to pursue a sound and useful course of instruction, similar to that which has hitherto been pursued in Schools of Art. The Examiners in 1868 were D. MacIise, R.A.; J. C. Horsley, R.A.; Richard Westmacott, R.A.; F. Leighton, R.A.; Sir M. D. Wyatt; R. Redgrave, R.A., and the Official Inspector.

One gold medal for the best study of the figure modeled from the Antique. *This study must be from a single figure and not more than thirty inches in height.*

One gold medal for the best example of painting a group of still life from nature, as a composition of color, in oil, or water-color. *The dimensions of this work must be 20 inches by 16 inches, or, if of other proportions, of equal or nearly equal surface.*

Six medals for the best designs in the three classes, Architectural Design, Surface Design, Plastic Design.

One medal for a work of a class not included under the above-named heads.

Twenty silver medals, of which part will be given to the second best works in the various subjects to which gold medals are assigned, and the rest to meritorious works in the same, or the best works in other, subjects of study.

Fifty bronze medals to meritorious works in any of the various subjects.

Any of these medals may be withheld if, in the opinion of the examiners, the works in any subject are not of sufficient merit to deserve them.

Should any student obtain more than one distinction in any National Competition, he will be allowed the medal attached to the highest distinction he has obtained, with a certificate of his further success.

Students who obtain medals of the same class in more than one year's competition, may receive books, &c., instead of medals.

No student can receive a medal of the same class twice for the same subject.

Additional prizes of works of art, books, &c., will also be awarded.

13. Works executed by students not included under the definition of artisan will be admitted to the National Competition and be eligible to gain prizes.

14. The Department will pay the carriage of works sent up under these rules, within imperial size; or when larger, if on stretchers constructed to fold within the imperial size.

15. The works entering into the National Competition will be exhibited in London, and in some one of the more important towns of the kingdom where suitable space can be provided.

16. A Night Class forms part of a School of Art, and Night Classes taught by the master of a School of Art or by teachers holding certificates of the 3d grade under his direction, but meeting elsewhere under the management of the Local Committee, may be considered as branches of the School of Art, and works under clause c, ¶ 3, executed in them may be sent up with the works of the School of Art for payments and for admission to the National Competition.

17. A grant not exceeding 2s. 6d. per superficial foot will be made, up to a maximum of 4,000 feet, in aid of new buildings, or buildings to be adapted for Schools of Art, provided:

a. That there is a population which requires a School of Art.

b. That the School of Art is likely to be maintained in efficiency.

c. That the site, plans, estimates, specifications, title, and trust-deed, be satisfactory to the Committee of Council.

18. Grants of 75 per cent. will be made on Art examples selected by the managers from lists approved by the Department.

19. In special cases where schools are permanently established and entirely devoted to instruction in Art, aid will be given towards the provision of apparatus and fittings specially constructed.

20. Schools of Art are entitled to borrow from the South Kensington Museum and Library objects of decorative art, drawings, oil paintings, prints, books, &c., for exhibition and for use as examples under the regulations given.

The Department will also issue such works, reproductions, &c., as may appear suitable to be retained as permanent loans for longer periods.

21. Students of Schools of Art who propose to become teachers, and who have taken the 1st certificate of the 3d grade, are eligible to compete for admission to the National Art Training School at South Kensington, with a maintenance allowance of 15s. or 20s. weekly. Students having passed in three, or, if females, in two, papers of the 1st certificate, may compete for admission as free students.

22. Students in Schools of Art may compete for National Scholarships which have been established at South Kensington. These are of the value of 50l. per annum, and are tenable for one or two years.

23. Two scholarships, of the value of 25*l.* and 11*l.* respectively, have been founded, and called "The Princess of Wales's Scholarships," for the two students who, being females, have taken the highest prizes of the year in the National Competition of all the Schools of Art.

EXAMINATIONS FOR PRIZES ONLY.

1. Public examinations may be held in places where no School of Art or Night Class exists, provided that a committee of not less than five well-known responsible persons be formed to conduct them under the regulations laid down for Schools of Art.

2. Prizes will be given to successful candidates of all classes, but no payments can be made on account of the success of students instructed by uncertificated teachers.

THE NATIONAL ART TRAINING SCHOOL.

The school at South Kensington is established for the purpose of training Art Masters and Mistresses for the United Kingdom, and the instruction of students in drawing, designing, and modeling, to be applied to the requirements of trade and manufactures. Particulars as to course of instruction, maintenance allowances, &c., will be given in another place.

LECTURES AT SOUTH KENSINGTON.

A course of twelve lectures on Anatomy, as applicable to the Arts, is given in each session; other lectures are delivered occasionally.

SOUTH KENSINGTON MUSEUM.

The Museum contains (in 1869, 20,000) objects collected with a view to illustrate the history, theory, and practical application of decorative Art, and classified under the following divisions:—

- | | |
|---------------------------------------|---------------------------------------|
| I. Sculpture, Carvings in Wood, and | X. Works in Metal and Electro-Copies. |
| II. Medals (Electrotypes), Seals, &c. | XI. Watches, Clocks, &c. |
| III. Mosaics, Marquetry, &c. | XII. Jewelry, and |
| IV. Paintings. | XIII. Arms, Armor, &c. |
| V. Japaned or Lacquered Work. | XIV. Furniture. |
| VI. Glass Painting. | XV. Leather Work. |
| VII. Enamels. | XVI. Basket Work. |
| VIII. Pottery. | XVII. Textile Fabrics. |
| IX. Glass Manufactures. | XVIII. Book-binding. |

Selections from these collections can be made according to the special requirements of each locality.

A series of specimens, accompanied by a card label, on which is printed its title and description, mounted in suitable glazed frames for exhibition, are loaned to the local schools, on such conditions as will secure suitable rooms for the exhibition of works of Art, insure protection from fire, and the admission of the public, especially artisans.

ART LIBRARY.

The Art Library of Books (in 1869 of 25,000 volumes, 8,600 Prints, Diagrams, and Photograms) is designed for the instruction of students of the National Art Training School and the Schools of Art; and for the use of the General Public on subjects connected with the history, practice, and illustration of Art. The collection of photograms includes architectural subjects, ancient drawings, examples of ornament, and specimens of Art from various public and private collections, both in Great Britain and abroad, to the number of 35,000.

Selections from the Library are loaned to the local Schools of Art to the extent of ten volumes at a time.

RESULTS IN 1868.

In 1868, there were 107 Schools of Art in connection with the Department, with 20,050 students, besides 120,928 children who received instruction in Drawing at 1,094 popular schools, taught by teachers trained in the National Art Training School at South Kensington.

II. INSTRUCTION IN SCIENCE.

[Summary of the Nature and Amount of Assistance afforded by the Science and Art Department to the Industrial Classes in procuring Instruction in Science. Revised in 1869.]

I. A sum of money is voted annually by Parliament for scientific instruction in the United Kingdom.

II. This sum is administered by the Science and Art Department.

III. The head of the Education Department, of which the Science and Art Department is a branch, is the Lord President of the Council, assisted by a member of the Privy Council, who is called the Vice-President of the Committee on Education, and who acts under the direction of the Lord President, and for him in his absence.

IV. The object of the grant is to promote instruction in Science, especially among the industrial classes, by affording a limited and partial aid or stimulus towards the founding and maintenance of Science schools and classes.

V. The payment of fees by the students can be looked upon as the only solid and sufficient basis on which a self-supporting system can be established and supported. Though my Lords do not consider it necessary at present to lay down any rules making the payment of fees an absolute condition of the grants on account of Science instruction, yet as the payments from the State must be expected to diminish, and as aid on account of those persons who do nothing for themselves can not be justified, committees of schools and classes and teachers are strongly urged (should it at present not be the practice) at once to impose as high a scale of fees as they consider can be raised, not only on middle class students but also on artisans.

VI. The following are the Sciences towards instruction in which aid is given:—

Subject 1, Practical Plane and Solid Geometry.	Subject 12, Geology.
" 2, Machine Construction and Drawing.	" 13, Mineralogy.
" 3, Building Construction, or Naval Architecture and Drawing.	" 14, Animal Physiology.
" 4, Elementary Mathematics.	" 15, Zoology.
" 5, Higher Mathematics.	" 16, Vegetable Anatomy and Physiology.
" 6, Theoretical Mechanics.	" 17, Systematic and Economic Botany.
" 7, Applied Mechanics.	" 18, Mining.
" 8, Acoustics, Light, and Heat.	" 19, Metallurgy.
" 9, Magnetism and Electricity.	" 20, Navigation.
" 10, Inorganic Chemistry.	" 21, Nautical Astronomy.
" 11, Organic Chemistry.	" 22, Steam.
	" 23, Physical Geography.

VII. The assistance granted by the Science and Art Department is in the form of—

1. Public examinations, in which Queen's Medals and Queen's Prizes are awarded, held at all places complying with certain conditions.
2. Payments on results to teachers.
3. Scholarships and Exhibitions.
4. Building Grants.
5. Grants towards the purchase of apparatus, &c.

VIII. Suitable premises, with firing, lighting, &c., must be found and maintained at the cost of the locality where the school or class is held. If at any time the funds do not cover these requisite local expenses, it must be inferred that there is no such demand as the Government is justified in aiding, for instruction in the locality; and the assistance of the Department will be withdrawn.

IX. A Local Committee of Management of not less than five well-known responsible persons must be formed in connection with every Science Class, who will carry out the instructions contained in the Appendix. Instructions for a Committee when payments are to be claimed are given, and also for a Committee of a class which merely desires examination.

EXAMINATIONS.

X. The Science and Art Department holds annually about May, through the agency of the Local Committees, public examination in all the before-mentioned Sciences in any place in the United Kingdom which complies with the requisite conditions.

XI. The examinations are of two kinds, but held on the same evening and conducted by the same Committee.

a. The class examinations for students under instruction in Science Classes, whether taught by teachers qualified to earn payments on results or not.

b. The honors examination, of a highly advanced character.

The class examination is of two grades or stages; the first stage or elementary examination, and the second stage or advanced examination. On this examination the payments on results and prizes, &c., are rewarded as specified in §§ XVIII, XIX, and XXIII.

XII. Application for examination must be made before the end of March, stating the number of persons and the subject or subjects in which they are to be examined.

XIII. In addition to the above, class examinations are held in Mathematics, Navigation, Nautical Astronomy, Steam, and Physical Geography, for the benefit of seafaring men—and for them only—three times a year, in all seaports where Local Committees are formed and are willing to undertake them. These examinations take place in the beginning of March, September, and December. The application for these examinations must be made before the 10th day of the previous month.

XIV. If at any time there be reason to suspect the fairness of the examination generally, or of the way in which particular candidates have worked their papers, a further examination will take place in such manner as may be deemed most advisable. Refusal on the part of any candidate to answer will entail the canceling of his previous examination.

XV. If two or more classes in the same town, or within a reasonable distance of one another, apply for the examination of the Science and Art Department, a general examination committee must be formed by the amalgamation of the several committees, to carry out the examinations at some common centre, such as the town hall or other public building. It is only when the classes consist of fifty or more candidates, that such amalgamation of the committees will not at present be insisted on.

XVI. Besides the registered students of a class, any other person may present himself for examination before the Local Committee whenever an examination is being held for the class. He must apply to the Local Secretary before the 26th of March, and if required by the Local Committee, pay a registration fee of not more than 2s. 6d. Arrangements must therefore be made by the Local Committee, or the General Examination Committee, as the case may be, to enable other candidates, besides the students in the class for which the Committee act, to sit at the examination. The registration fee of 2s. 6d., which such candidates may be required to pay, is to reimburse the Committee for any extra expenses incurred by such attendance, and may at their option be remitted.

XVII. At the May class examinations and the quarterly examinations of seamen the grades of success are:—in the first stage or elementary paper, first, second, and third class; and in the second stage or advanced paper, first and second class. For the third or lowest class the standard of attainment is only such as will justify the Examiner in reporting that the instruction has been sound, and that the students have benefited by it. The standard may be raised from year to year.

XVIII. To all successful students are given printed lists of results showing their position; to the first class in both stages are given Queen's prizes, consisting of books or instruments chosen by the candidates from lists furnished for that purpose.

These are unlimited in number, and are open to all candidates who come within either of the following categories: (1.) Students in Science Classes under

teachers qualified to earn payment; (2) Registered Students in Artisan Classes taught by other teachers.

Other candidates, if successful, only receive cards of merit.

The following are exceptions to the above rule:—

a. Teachers earning or who have earned payments on the results of instruction; and

b. Students who have previously received the same, or a higher class, in the same subject.

XIX. Four medals, one gold, one silver, and two bronze, are given in the class examination in each subject for competition among the bona fide students of Science Classes who either come within the category of persons on account of whom payments can be earned or are under 17 years of age.

Only registered students of schools and classes under Local Committees are eligible for medals. They can not be taken by middle class students who are more than 17 years of age, nor by persons engaged in teaching, even if qualified as above. Should a student take more than one gold, silver, or bronze medal, he will receive books instead.

PAYMENTS ON RESULTS.

XX. Persons are qualified to earn payments on results who have:—

a. Obtained certificates as teachers in any of the before-mentioned sciences, according to the rules in force previous to January, 1867, or,

b. Obtained a First or Second Class in the advanced paper at the May class examination since that date, or,

c. Taken honors at the May examination.

No payments are made to a teacher on account of instruction given in subjects in which he is not so qualified.

XXI. Payments on results are made either directly to teachers or to the committee or managers of the school. Where classes are formed by a teacher incidentally, in addition to his regular duties, the payment may be made directly to him. Where there is a regularly-organized Science School, with day, or day and evening classes in science, the payments will be made to the committee. The question of a school claiming under this last head will be specially considered by the Department.

XXII. Payments are only made to the teacher or to the committee on condition that the student has received twenty-five lessons at least from the teacher or teachers in each subject in which payment is claimed since the last examination, each lesson being an attendance at a meeting of the school of at least three-quarters of a hour's duration on a separate day. The twenty-five lessons need not necessarily be all given in one year, but may extend over a longer period.

XXIII. Payments are made to the qualified teacher on account of the instruction of students of the Artisan Classes in the following manner:—The payments claimable for each student in each subject are—3*l*. for a first class in the elementary stage, 2*l*. for a second class, and 1*l*. for a third class, and a further payment of 2*l*. for a first class and 1*l*. for a second class in the advanced stage, provided the student has in a previous year passed in the elementary stage; but these amounts are reduced in the following ways:—

1st. If the student has been previously successful in the same stage of the same subject, such payments are reduced by the normal payment which was claimable on such previous success; for instance, the 2*l*. payment for a second class in the first stage would, if the student had previously taken a third class, be reduced by 1*l*.

2d. When on this scale they would amount to more than 60*l*., the excess up to 40*l*. is diminished by one-quarter, the excess above 40*l*. by one-half. Thus payments which on the above scale would be 100*l*. and 150*l*., will be reduced to 90*l*. and 115*l*. respectively. If the teacher be instructing classes three miles or more apart, this deduction will be reduced by the amount of his traveling expenses.

XXIV. Payments are made to the Committees on the same scale as that given in § XXIII, with the exception of the reductions described in the last

paragraph (XXIII, 2d), which do not apply, but no payment of more than 15*l*. will be made on account of any one student, nor will the total payment to the school exceed a maximum of 2*l*. per successful paper worked at the examination by artisan students taught during the preceding year.

These payments may be divided in any proportion the Committee think fit among the teachers of the school, and a proportion not exceeding 20 per cent., nor exceeding the local voluntary contribution to the expenses of the school, may be deducted by the Committee in aid of such expenses.

XXV. The claim for the payments must be made according to the Form prescribed by the Department. The voucher must be signed by the secretary or chairman and two members of the Committee at least, at a meeting of the Committee held specially for the examination and certification of the claim.

XXVI. A school register must be kept in each subject on a Form which will be supplied on application. This must be made up from day to day, and will be examined and approved by the Inspector on his visit. It must be sent to the Department with the claim for payment, and no payment can be made unless the register is properly kept.

XXVII. All payments to qualified teachers on account of Science teaching are made by the Science and Art Department, and are only made in respect of a school in connection with the Science and Art Department. No such payments are made in respect of any instruction in Science that may be given during the three attendances of an Elementary School receiving aid from the Educational Department, Whitehall.

XXVIII. These grants are only made while the teacher is giving instruction in a day or evening school or class for the industrial classes (adults or boys), approved by the Science and Art Department, and open at any time to the visit and inspection of its officers. The Managers of an Elementary School under the inspection of the Education Department can permit their premises to be used for Science teaching, provided that no interference be allowed with the primary purposes of such Elementary School, or in any way with the three attendances of the Elementary School.

SCHOLARSHIPS AND EXHIBITIONS.

XXIX. The detailed rules prescribed by the Department provide for two forms of scholarship in connection with elementary schools, whether receiving State aid as such or not. The first of these is the elementary school scholarship; 5*l*. are granted to the managers of any elementary school for the support of a deserving pupil, if they undertake to support him for a year and subscribe 5*l*. for that purpose. One such scholarship is allowed per 100 pupils in the school. The selection of the pupil for the scholarship is to be by competition; the details of this, however, the managers of the school may arrange as they please, subject to the approval of the Science and Art Department. The payment of 5*l*. by the Science and Art Department is made conditional on the scholar passing in a branch of science at the May examination.

XXX. The second, a more advanced scholarship, is "the Science and Art Scholarship," of which, again, there may be one per 100 pupils. The Science and Art Department makes grants of 10*l*. towards the maintenance for one year of the most deserving pupil or pupils in an elementary school who may have taken a first grade in elementary Geometry and Free-hand or Model Drawing, and passed in some branch of Science, *provided that the managers of the school undertake to support him for one year, and subscribe 5*l*. for that purpose*, on condition that at the end of the year the scholar obtains at least a first class in the elementary stage in the subject of science in which he originally passed, or passes in some other subject. In both these cases the scholar must be from 12 to 16 years of age.

XXXI. Thirdly, for advanced scientific instruction, the Minute offers local exhibitions to enable students to complete their education at some college or school where scientific instruction of an advanced character may be obtained. The Science and Art Department will make a grant of 25*l*. per annum, for one, two, or three years, for this purpose, when the locality raises a like sum by voluntary subscriptions. And if the student attend a State school, such as the

Royal School of Mines in London, the Royal College of Chemistry in London, or Royal College of Science in Ireland, the fees are remitted. It is a condition that the Exhibition is awarded in competition, the branch or branches of science for which may be fixed by the locality, and that the student pursues his studies satisfactorily.

XXXII. Royal Exhibitions, of the value of 50*l.* per annum, tenable for three years, to the Royal School of Mines, London, and the Royal College of Science, Dublin, are given in competition at the May examinations.

XXXIII. Whitworth scholarships, of the value of 100*l.* per annum, tenable for two or three years, are also given in competition at the May examinations. The special conditions framed for these can be obtained on application.

BUILDING GRANTS.

XXXIV. A grant in aid of a new building, or for the adaptation of an existing building for a School of Science, may be made at a rate not exceeding 2*s.* 6*d.* per square foot of internal area, up to a maximum of 500*l.* for any one school, provided that the school—

- a. Be built under the Public Libraries Act; or,
- b. Be built in connection with a School of Art, aided by a Department building grant.

And provided that there is a population in the neighborhood which requires a School of Science; that it is likely to be maintained in a state of efficiency; and that the site, plans, estimates, specifications, title, and trust deeds, are satisfactory.

APPARATUS GRANTS.

XXXV. A grant towards the purchase of apparatus, diagrams, &c., of 50 per cent. on the cost of them, is made to Science Schools and Classes in Mechanics' and similar institutions with a properly constituted Committee, on requisition duly made.

TEACHERS' VISITS TO LONDON.

XXXVI. Science teachers who have taught two years consecutively and passed not less than thirty students each year, are allowed second-class railway fare and 3*l.* towards their expenses while living in London for the purpose of visiting the South Kensington Museum and other Metropolitan institutions, in order that they may acquire for the benefit of their students a knowledge of the latest progress in those educational subjects which affect the schools, on condition that they remain there five days at least.

The Science Directory (1869) contains Terms and Regulations in detail for local committees in transacting business with the Department, and the conditions on which the Scholarships and Exhibitions are awarded, as well as a Syllabus of the subjects in which the Examinations in Science are held by the Department. This Syllabus is a comprehensive survey, from the practical standpoint, of the whole field of Geometry and Geometrical Drawing; Machine Construction and Drawing; Building Construction and Naval Architecture; Elementary Mathematics (Arithmetic, Geometry, Algebra, Trigonometry, Conic Sections, Calculus); Theoretical and Applied Mechanics; Acoustics, Light, and Heat; Magnetism and Electricity; Chemistry, inorganic and organic; Geology; Mineralogy; Animal Physiology; Zoölogy; Vegetable Anatomy and Physiology; Systematic and Economic Botany; Principles of Mining; Metallurgy; Navigation; Nautical Astronomy; Steam; Physical Geography; with references to elementary treatises in which each subject is treated.

The Science and Art Department having accepted the administration of the examinations for the thirty scholarships of the value of 100*l.* each, instituted by Mr. Whitworth, in the theory and practice of Mechanics and its cognate sciences, for the promotion of Engineering and mechanical proficiency, we append, in this connection, Mr. Whitworth's Memorandum on the subject.

WHITWORTH SCHOLARSHIPS FOR MECHANICAL SCIENCE.

On the 18th of March, 1868, Joseph Whitworth* addressed a letter to the First Lord of the Treasury, in which he offered "to found thirty scholarships, of the annual value of 100*l.* each, to be applied for the further instruction of young men, natives of the United Kingdom, selected by open competition for their intelligence, and proficiency in the theory and practice of mechanics and its cognate sciences, with a view to the promotion of engineering and mechanical industry in this country, and in the hope of bringing science and labor into closer relation with each other." This offer was promptly accepted by the government, and the generous donor was invited to make any suggestion as to its management during his life, and to define the conditions on which the endowment fund should be administered. On the 4th of May, Mr. Whitworth transmitted the following Memorandum on the establishment of 60 exhibitions of 25*l.* for 1868-9, preparatory to the competition for his scholarships, and requesting that the course of examination should be conducted by the Science and Art Department.

MEMORANDUM ON SCHOLARSHIPS FOR MECHANICAL SCIENCE.

I. Having offered to the Lords of the Committee of Council on Education to "found thirty scholarships of the annual value of 100*l.* each, to be applied for the further instruction of young men, natives of the United Kingdom, selected by open competition for their intelligence and proficiency in the theory and practice of mechanics and its cognate sciences, with a view to the promotion of engineering and mechanical industry in this country," I propose that the following should be the general arrangements in the first instance, which may be modified after the first competition has taken place in May, 1869.

II. That the thirty scholarships of 100*l.* each should be open to all of Her Majesty's subjects, whether of the United Kingdom, India, or the Colonies, who do not exceed the age of 26 years, and be held either for two or three years, as experience may prove to be desirable; that ten scholarships should be competed for and awarded in May, 1869, at the annual national examinations in science, provided that a sufficient number of candidates should be required to spend the period of holding the scholarships in the further satisfactory prosecution of the studies and practice of mechanical engineering, and pursue their studies according to the spirit of the endowment, making periodical reports of them; that the student should state where he proposes to pursue his studies, the Lord President of the Council deciding if the proposal can be allowed, also if the student's progress be satisfactory, and the manner in which it shall be tested from year to year. In deciding if the plan of study proposed by the student be satisfactory, as much latitude as possible may be allowed. If

* Joseph Whitworth was born near Manchester in 1803, and was educated and trained as a mechanical engineer. In 1840, he read before the British Science Association at Glasgow a paper on the best methods of producing accurate plane surfaces in metals, and in 1841, before the Institution of Civil Engineers, on a uniform system of screw threads. About the same time he commenced the manufacture of planing machines, and tools, which attracted much attention at the Great Exhibition of 1851. In 1853 he visited the United States as Commissioner to the International Exposition at New York, and on his return, made a Report on the Industrial Progress of this country, especially in the matter of locomotives. In 1856 he commenced, in Manchester, the manufacture of rifled guns and cannons which are adopted in the English army service, and which, for accuracy and distance of range, are among the best in the world. In 1868, he received the Albert Gold Medal, awarded by the Society of Arts, "for the invention and manufacture of instruments of measurement by which the production of machinery has been brought to a degree of perfection before unattained, to the great advantage of arts, manufactures, and commerce, for the promotion of which this medal was instituted."

the student wish to complete his general education, instead of continuing his special scientific study, he may be permitted to do so. He may go to the universities or colleges affording scientific or technical instruction, or he may travel abroad. The successful artisan should be encouraged to study theory, and the successful competitor in theory aided in getting admission to machine shops and other practical establishments. All further details would be hereafter prepared and issued by the Science and Art Department.

III. The candidates must be of sound bodily constitution.

IV. The first competition should be in the following theoretical subjects:—

- | | |
|--|-------------------------------------|
| 1. Mathematics (elementary and higher). | 4. Physics. |
| 2. Mechanics (theoretical and applied). | 5. Chemistry, including metallurgy. |
| 3. Practical plane and descriptive geometry, and mechanical and free-hand drawing. | |

And in the following handicrafts:—

- | | |
|------------------|--------------------------------|
| 1. Smith's-work. | 3. Filing and Fitting. |
| 2. Turning. | 4. Pattern-making and molding. |

V. No candidate should obtain a scholarship who has not shown a satisfactory knowledge of all the following theoretical subjects:—

- | | |
|----------------------------|--|
| 1. Elementary mathematics. | 3. Practical plane and descriptive geometry and free-hand drawing. |
| 2. Elementary mechanics. | |

with the power to use one or more of the following classes of tools:—

- | | |
|---------------------------|---------------|
| a. The axe. | d. The file. |
| b. The saw and plane. | e. The forge. |
| c. The hammer and chisel. | |

I propose that the maximum number of marks obtainable in the theoretical subjects and those obtainable by the most skilled workman should be equal.

VI. My object in devising the foregoing scheme has been, while requiring a practical acquaintance with a few simple tools as a *sine qua non*, to render the competition accessible on fairly equal terms to the student who combines some practice with his theory, and to the artisan who combines some theoretical knowledge with perfection of workmanship.

Preparatory Exhibitions of 25l. for the Year 1868.

VII. As the scholarships scheme can only come into full operation by degrees, I propose from the fund ultimately available for the scheme at once to create sixty exhibitions or premiums, of the value of 25l. each, tenable until April, 1869, and to place them at the absolute disposal of the governing bodies of the following educational institutions and towns, in order that they may award them to youths under 22 years of age, who may thus be aided to qualify themselves, and must compete for the scholarships of 100l. in May, 1869.

VIII.—

- | | |
|--|----------------------------|
| 8 Exhibitions to Owens College, and 2 to the Grammar School, Manchester, the seat of my workshops. | 3 University of Oxford. |
| | 3 University of Cambridge. |
| | 3 University of London. |

And one to each of the following universities, colleges, and public schools:—

- | | |
|--|--------------------------------------|
| University of Durham. | Westminster. |
| University of Dublin. | Winchester. |
| University of Edinburgh. | St. Paul's, London. |
| Watt Institution, Edinburgh. | Merchant Tailors'. |
| University of Glasgow. | Christ's Hospital. |
| Andersonian Institution, Glasgow. | City of London. |
| University of St. Andrew's. | Shrewsbury. |
| University of Aberdeen. | Marlborough. |
| To each of the Queen's Colleges at Belfast, Cork, Galway, Ireland. | Cheltenham. |
| King's College, London. | Chester. |
| University College, London. | Clifton. |
| Exon. | Brighton. |
| Harrow. | Liverpool. |
| Rugby. | |
| Charter House. | 2 to the College of Preceptors. |
| | 3 to the Science and Art Department. |

I propose that the following exhibitions shall be given to artisans only:—

- 3 to the Society of Arts.

Also one for artisans to each of the following towns:—

Birmingham.	Swansea and Cardiff.	Leeds.	Sheffield.
Bristol.	Halifax or Huddersfield.	Northampton.	

And if there be any of the above unapplied, they may be given by the Science and Art Department to any other scholastic institution which makes satisfactory arrangements for affording instruction in mathematics and mechanics, free-hand and mechanical drawing.

IX. I would point out that the exhibitions to artisans may perhaps be increased to 50*l*. for the year, by connecting them with the Science and Art Department, under the Minute of the 21st December, 1867.

In his evidence before the House of Commons *Select Committee on Scientific Education*, May 7, 1868, in explanation of paragraphs 5 and 6 and other features of the above Memorandum, Mr. Whitworth remarked:—

I think it would be very desirable for youths to learn the use of the simple tools, such as the axe, saw, plane, hammer, chisel, file, and forge, and that they can hardly begin the practice too young—at school, in the shop, or wherever they had an opportunity of doing so. To illustrate:—I should propose learning the use of the knife; and I would give notice that there would be competition for a half-dozen boys in the use of this implement in making square or cylindrical pieces of wood, of which I would have a carpenter prepare a half-dozen specimens of white deal. After several trials, once a week, on this material, I would have a second competition, on blocks of red deal; and then a third, on beech, or ash, or oak. The successive trials would illustrate the different natures of woods, and of adapting the edge of the knife to the kind of wood. In successive trials the boys should make a square piece of wood round, or octagonal, or hexagonal. So to learn the use of the hammer and the anvil, the boy should be furnished with a piece of lead (with tin in it to make it hard) and be asked to square it and otherwise modify its shape under the hammer, and other tools. The boys could get the instruction when they pleased, but the school-teacher should from time to time encourage and ascertain the mechanical aptitude of his scholars—and the results of the use of *the hand as well as the brain*.

To questions respecting the kind and value of scientific instruction to engineers and foremen of works, Mr. Whitworth replied in substance as follows:

In the higher elementary schools and colleges, besides instruction in mathematics and mechanical drawing, mechanical engineering and the construction of machinery should be taught, with the aid of models of different kinds. This instruction, even when of the most comprehensive and practical kind, will not supersede the training of the workshop. To meet the sharp competition of free trade, and of the intelligent and skilled labor of the Continent, our foremen, engineers and artisans must be well informed of the objects of the manufacture and work they have in hand, and of the most simple and economical ways of doing it, which will be found to be in harmony with the laws of nature and the principles of science, and which they must understand and intelligently follow.

In awarding scholarships under my scheme, my desire is to give to proficiency in practical work the same number of marks (say 500) as to theoretical knowledge. To those who attain the highest proficiency in a given number of branches at the end of three years, I submit that honors in the nature of academic degrees, as incentive to exertion, and marking the estimation of such proficiency by some recognized public authority, should be given. To secure the right kind of teaching, in the line of studies included in my Memorandum, a sufficient number of Professors of Engineering and Mechanics should be called into existence by endowment, government grants, and the payments of fees.

Practical skill as mechanicians, delicacy of perception, and manual dexterity, to be thoroughly attained, must be begun early; hence the necessity of adapting the time and kind of theoretical instruction in science, so as not to obstruct, but rather encourage the early use of the simplest instruments specified.

The existence of Trade Museums in manufacturing centres, showing the progressive improvements in machinery and fabrics, would stimulate invention and educate the taste of workmen and the community; and the locality and the government should combine in their establishment, extension, and support.

OPERATIONS OF DEPARTMENT IN 1869.

We glean from the Seventeenth Report the following summary of the operations and results of the Science and Art Department for the year 1869.

I. AID FOR THE PROMOTION OF SCIENCE.

a. Elementary Science.—Counting as a school every institution in which scientific instruction is given, the number has increased from 300 in 1868, to 516, with 21,500 pupils, of whom 13,234 offered themselves for examination. Since the close of the year, the Science Schools have increased to 810, with 29,956 students. The number of teachers who were paid on the results of these examinations was 486, the average amount of 35*l.* per teacher. Prizes and medals to the value of 711*l.* were awarded to the pupils. Local exhibitions and Elementary School and Science scholarships, towards each of which the Government contributes 25*l.*, are now in operation, and poor and competent students are thus enabled to continue at school. Officers of Royal Engineers are now employed on the examinations and inspection, without additional charge to the Department. An increased number of students (253) from the country attended the special courses of lectures in the London School of Mines.

b. Advanced Scientific Instruction.—The attendance on the regular and evening courses of the *Royal School of Mines* has been as follows:—17 on the entire course, and from 6 to 36 on each of the special subjects of chemistry, natural history, physics, geology, &c.; 600 on the lectures to working men; 237 on the evening lectures on chemistry, and 180 on the evening course on physics, designed particularly for teachers. The students' laboratory of the *Royal College of Chemistry* has been crowded, and the total attendance has been 136. The *Metallurgical Laboratory* in connection with the Museum of Practical Geology was attended by 35 students.

The *Royal College of Science for Ireland* is now in operation on a three years' course, which includes 14 subjects, and included in 1869, 1,125 lectures. The museum of the College has been visited by 6,901 persons. The Evening Popular Lectures, at a fee of 6*d.* for each course, were attended by 969 persons. The laboratory demonstrations, intended for artisans employed in the day, were attended by 36 students.

The *Royal School of Naval Architecture and Marine Engineering* at South Kensington was attended by 40 students, 30 of whom were sent by the Admiralty, and 10 were private students.

II. AID IN ELEMENTARY DRAWING.

The *National Art Training School* at South Kensington has been attended by 895 students (531 males and 364 females); of these, 34 were maintained as masters of Schools of Art; 26 were national scholars who were in receipt of allowances to enable them to become designers, or art-workmen. The total sum realized from fees was \$6,000.

Government Schools of Art exist in 107 localities, attended in 1869 by 19,864 students; 65 of these schools availed themselves of the privilege of borrowing drawings for use as examples, and 24, books from the South Kensington library.

National Competition of Schools of Art consisted in 1869 of 232 studies from the antique, 359 designs, and 432 studies in light and shade, or color. The

awards were 10 gold medals, 20 silver, and 50 bronze, together with 101 Queen's prizes in books.

Night Classes, for instruction in drawing for artisans, have increased to 249, with an attendance of 9,322 persons.

Of 1,094 *Elementary Schools for the Poor*, examined in reference to proficiency, 120,928 children were taught drawing by certificated teachers.

Out of 2,101 pupil-teachers of 40 *Training Schools*, 271 obtained certificates of competency to teach drawing.

In 1869, 1,301*l.* were granted on 342 requisitions for aid towards the cost of examples, the local committee contributing a like amount.

The grand total of persons taught drawing through the agency of the Department in 1869 was 157,198, who together paid in fees 20,200*l.* *Payments on results* of examination were paid on 55,324 of the first grade; 6,798 of the second; 2,032 of the third grade; 640 of the third grade, on account of advanced work; 5, of 10*l.* each, for obtaining Art-Teacher's certificate; 9, each of 5*l.*, for student prepared for National Scholarship.

Total number of *Prizes* issued, of first grade, 7,361; of second, 2,761; of third, 830. *Total*, 10,952.

The *Art Museum* and *Library* has been enriched in 1868 and 1869 by gifts and bequests to the value of 50,000*l.*

III. SOUTH KENSINGTON MUSEUM.

The decorations of the new buildings for the Schools of Science and Naval Architecture are executed by Art-students, working under the directions of the artists who furnish the designs. The method of warming, lighting, and ventilating has been found efficient and satisfactory.

The *Educational Collection and Library* has been increased by exchange, through the Foreign and Colonial office. The number of readers in 1869 was 11,097. The *Food Collection*, *Museum of Economic Fish Culture*, *Animal Products Museum*, *Museum of Construction and Building Materials*, *Museum of Modern War Materials*, *Museum of Machinery and Models*, and *Naval Museum*, have all received accession of objects, and of visitors. The total number of visitors was 1,043,654.

Branch Museums exist in different localities, supported or aided by the State, and are all prosperous and popular. Among them are: The *Bethnal Green Museum*; *Museum of Practical Geology* in Jermyn Street, visited by 47,506 persons; *Edinburgh Museum of Science and Art*, visited by 309,278; *Natural History Museum of the Royal Dublin Society*, visited by 31,915; *Glasmovin Botanical Garden*, Dublin, visited by 223,536 persons, of whom 172,600 were on Sundays; *Library of Royal Dublin Society*, visited by 18,375 persons; *Royal Zoological Society*, visited by 136,052.

The *Geological Survey* was prosecuted at an expense of 18,791*l.*; the *Mining Record Office* continues the exploration of the mining districts, &c.

The Schools of Science and Art have been attended by 187,800 persons; the Museums in London, Edinburgh, and Dublin, have been visited by 1,798,842 persons, the local Exhibitions by 338,000, and the Art and Educational Libraries by 48,244—and the total number of individuals reached by the Department is 2,372,000.

The total expenditure by the Department for the year ending March 1, 1869, was 220,344*l.*

THE NATIONAL ART TRAINING SCHOOL,

AT SOUTH KENSINGTON.

THE NATIONAL ART TRAINING SCHOOL, when first instituted in 1837, as a Government School of Design, occupied rooms on the second floor of the Somerset House, once occupied by the Royal Academy. In 1852, when it became a Training School for Teachers in Art, accommodations were granted by the Queen in Marlborough House, which were occupied till 1856, when the school was removed to South Kensington to a temporary building, which was exchanged in October, 1863, for buildings specially erected for its accommodations—fire-proof, properly heated and ventilated, and admirably lighted by day and night, and having a distinct series of rooms for male and female students, with separate rooms in each series for drawing, painting, and modeling, with a lecture-room in common for the male and female classes.

The following announcement, taken from the Art Directory issued by the Department in 1869, explains the objects, course of instruction, and scheme of examination and scholarship of this admirable institution:—

1. The National Art Training School at South Kensington is established for the purpose of training Art Masters and Mistresses for the United Kingdom, and for the instruction of students in drawing, designing, and modeling, to be applied to the requirements of trade and manufactures.

COURSE OF INSTRUCTION.

2. The course of instruction is as follows, although not progressive in the order in which the stages are mentioned:—

Stage 1. *Linear Drawing, by aid of Instruments.*

- a. Linear Geometry.
- b. Mechanical and Machine Drawing, and details of Architecture from copies.
- c. Linear Perspective.

Stage 2. *Free-hand Outline Drawing of Rigid Forms from examples or copies.*

- a. Objects.
- b. Ornament.

Stage 3. *Free-hand Outline Drawing from the "round."*

- a. Models and Objects.
- b. Ornament.

Stage 4. *Shading from flat examples or copies.*

- a. Models and Objects.
- b. Ornament.

Stage 5. *Shading from the round or solid forms.*

- a. Models and Objects.
- b. Ornament.
- c. Free sketching and sketching from memory.

Stage 6. *Drawing the Human Figure, and Animal Forms, from copies.*

- a. In outline.
- b. Shaded.

Stage 7. *Drawing Flowers, Foliage and Objects of Natural History, from flat examples or copies.*

- a. In outline.
- b. Shaded.

Stage 8. *Drawing the Human Figure, or Animal Forms, from the "round" or nature.*

- a. In outline from casts.
- b¹. Shaded (details).
- b². Shaded (whole figures).
- c. Studies of the human figure from nude model.
- d. Studies of the human figure, draped.
- e. Time sketching and sketching from memory.

Stage 9. *Anatomical Studies.*

- a. Of the human figure.
- b. Of animal forms.
- c. Of either, modeled.

Stage 10. *Drawing Flowers, Foliage, Landscape Details, and Objects of Natural History, from nature.*

- a. In outline.
- b. Shaded.

Stage 11. *Painting Ornament from the "flat" or copies.*

- a. In monochrome, { either in water-color, tempera, or oil.
- b. In colors,

Stage 12. *Painting Ornament from the cast, &c.*

- a. In monochrome, either in water-color, oil, or tempera.

Stage 13. *Painting (general) from flat examples or copies, flowers, still-life, &c.*

- a. Flowers or natural objects, in water-color, in oil, or in tempera.
- b. Landscapes.

Stage 14. *Painting (general) direct from nature.*

- a. Flowers, or still-life, in water-color, oil, or tempera without backgrounds.
- b. Landscapes.

Stage 15. *Painting Groups as compositions of color.*

- a. In water-color, oil, or tempera.

Stage 16. *Painting the Human Figure or Animals in monochrome from casts.*

- a. In oil, water-color, or tempera.

Stage 17. *Painting the Human Figure or Animals in color.*

- a. From the flat, or copies.
- b. From nature, nude or draped.
- c. Time sketches and compositions.

Stage 18. *Modeling Ornament.*

- a. Elementary, from casts.
- b. Advanced, from casts.
- c. From drawings.
- d. Time sketches from examples and from memory.

Stage 19. *Modeling the Human Figure or Animals.*

- a. Elementary, from casts of hands, feet, masks, &c.
- b. Advanced, from casts or solid examples.
- c. From drawings.
- d. From nature, nude or draped.

Stage 20. *Modeling Fruits, Flowers, Foliage, and Objects of Natural History, from nature.*

Stage 21. *Time-sketches in Clay of the Human Figure, or Animals, from nature.*

Stage 22. *Elementary Design.*

- a. Studies treating natural objects ornamentally.
- b. Ornamental arrangements to fill given spaces in monochrome.
- c. Ornamental arrangements to fill given spaces in color.
- d. Studies of historic styles of ornament drawn or modeled.

Stage 23. *Applied Designs, Technical or Miscellaneous Studies.*

- a. Machine and mechanical drawing, plan-drawing, mapping, and surveys done from actual measurement.
- b. Architectural design.
- c. Surface design.
- d. Plastic design.

3. *Students* who have paid fees for two consecutive sessions are entitled, on passing the whole of the *Second Grade* examinations, to an admission to their class for one year, at a remission of *half* the usual fee. They are entitled to a continuance of the same privilege for a *second year only*, if they have obtained a "pass" for merit of work, or a prize or medal in the annual National Competition.

Students who have paid fees as above are entitled, on passing satisfactory examinations in any *three*, or if females in *two*, of the subjects of the 1st certificate, to *free admission*, which will last for one year, and is renewable if the 1st certificate be fully taken within that time. After obtaining the 1st certificate, students will continue to be admitted free, provided a "pass" for merit of work, or a prize or medal in the annual National Competition be taken annually; or, in lieu of these, some more advanced studies of Drawing from the antique, or

Painting. Students who have obtained the 1st certificate are also eligible to compete for weekly allowances, according to their progress in the school and the certificates obtained, of 5s., 10s., or 15s., in return for which they have to perform certain duties as teachers, and must engage to accept the situations to which they are recommended.

A limited number only of students may compete with students of Local Schools of Art for maintenance allowances of 20s. or 25s. weekly. No student will be eligible to receive such higher payments who has not taken one Art certificate, or a Science certificate in Mechanical Drawing or Building Construction. Such allowances will be granted for one session only. They may be renewed at the discretion of the Department, according to the progress and conduct of the student, and the demand for certificated teachers. No student in training will be allowed to remain as such after he has obtained five certificates. Besides their studies in the Training School, students in training will be required to give instruction in parochial and district schools as a part of their training.

Application for admission to the Training Classes must be made the first Saturday in February or the first Saturday in September.

4. With a view to assist female students in obtaining the necessary qualifications to become Art teachers,* admission to the Training School for females is regulated by the rules stated above; they may then receive an allowance of from 5s. to 15s. a week, according to vacancies on the list, for a period not exceeding two years, to enable them to obtain the certificate of the 3d Grade. If their progress and promise justify it, they may (having obtained the 2d certificate within the two years) continue to receive an allowance for another year, while working for the 3d certificate.

ART CERTIFICATES—GROUPS OF SUBJECTS FOR EXAMINATIONS.

5. The twenty-three stages of instruction are divided into six groups.

Certificates of competency to teach the subjects included in each group are given to candidates who pass the necessary examinations.

These are called Certificates of the 3d Grade.

The following are the Groups which form the subjects of Certificates:—

GROUP 1.—ELEMENTARY DRAWING AND COLORING, Stages 1, 2, 3, 4, 5, 6, 7, 10, and 13.

GROUP 2.—PAINTING, with examination in Styles of Art, and in the elementary principles of ornament, Stages 11, 12, 14, 15, and 22.

GROUP 3.—THE FIGURE Drawn and Painted, with examination in the historic styles of ornament, Stages 8, 9, 16, and 17.

GROUP 4.—MODELING ORNAMENT, with examination in Styles of Art, and in the elementary principles of ornament, Stages 18, 20, 22.

GROUP 5.—MODELING THE FIGURE, with examination in the historic styles of ornament, Stages 8, 9, 19, 21.

GROUP 6.—TECHNICAL INSTRUCTION.

EXAMINATIONS.

6. The Examinations of the 3d Grade will take place annually at the offices of the Department, South Kensington, in the month of February.

Candidates who are desirous of passing such Examinations must forward their names, together with all the requisite works, to the Secretary of the Department, on the first Saturday in February. They must state the Group or Groups for which they seek to obtain Certificates. These works, if accepted, will be retained by the Department: works of unsuccessful Candidates, and Candidates not proposing to earn payments from the State, will be returned. They will be informed whether their drawings have been accepted and whether permission can be granted to them to present themselves for Examination.

* Should opportunities offer for a female student in training to employ a portion of her time in teaching, she may accept engagements, with the concurrence of the head-master, and receive a reduced allowance, proportionate to the time remaining for studies connected with her certificate; it being understood that the duration of the allowances will in no case exceed three years. It must be distinctly understood that at the termination of the allowance, the Department in no degree undertakes to provide or obtain employment, as teachers, for the male or female students so trained.

These examinations will take place before the Inspector-General for Art, assisted by other Examiners who may be associated with him. They will be conducted partly by written exercises, and partly by studies made in a given time. Each Candidate may be required to teach a class in the presence of the Examiner.

Traveling expenses will be allowed to candidates from provincial schools who obtain certificates.

First Group.

Candidates for Certificates for the First Group—

1. If they have attended the Training School of the Department at South Kensington, they must have obtained a recommendation for admission to examination,* and the Rudiments of Constructive Architecture.*

2. They must be prepared to instruct a class in the presence of the Examiners, either in Free-hand Drawing, Geometrical Drawing, Perspective or Model Drawing.

3. To sketch, in a given time, a group of Models, placed by the Examiners for that purpose.

4. To solve, in writing, questions on Geometry, Perspective, Orthographic Projection,* and the Rudiments of Constructive Architecture.*

For the First Group the following works are necessary, ten in number:—

- Stage 1a. A sheet of Geometrical Problems.
 " 1b. A sheet of Mechanical Drawings.*
 " 1c. A sheet of Prospective Diagrams.
 " 1d. A sheet of Architectural Details.*
 " 3. An outline from the Madeleine Pilaster.
 " 5a. A sheet of Drawings from Models, shaded in chalk or pencil.
 " 5b. A sheet of Ornament shaded from the Cast, in chalk.
 " 6. An outline of the Figure from the flat.
 " 10. A sheet of Foliage drawn from nature.
 " 13. A sheet of Flowers painted from the flat.

Second Group.

For the Second Group each Candidate—

1. Must already have obtained a Certificate for the First Group.

2. Will be required to sketch, in color, in a given time, a Group placed by the Examiners for that purpose—using any medium or vehicle which the Examiners may propose.

3. *Will be required to answer in writing a paper of questions on the elementary principles of Ornament and on the history and peculiarities of the Ornamentation of the class chosen for illustration in the Drawings sent up in Stage 22d.†*

4. Will be required to answer, in writing, a paper of technical questions on art, and on the general principles and execution of the several historic schools; and a paper of questions on the nomenclature of structural botany.‡

For the Second Group the following works are required, six in number:—

- Stage 13 or 14. A landscape in oil from nature, or from some approved example.
 " 12. A painting of ornament in monochrome from the cast, in oil or tempera.
 " 14. A study of Flowers painted from nature in water-color.
 " 15. A study of a group as a Composition of Color, in oil.
 " 22c. A sheet of at least two studies of Ornamental arrangements in color.
 " 22a. A sheet of studies of some plant or plants botanically analyzed with a view to ornamental details.
 " 22d. *A set of studies executed during the period of training, from some one class of objects in the South Kensington Museum, sufficiently extensive to represent the history of the class selected.*

Third Group.

For the Third Group each Candidate—

1. Must already have obtained Certificates for the First and Second Groups.

2. Will be required to answer, in writing, a paper of questions on the anatomy of the Human Figure.

* Female candidates are not examined in Mechanical or Architectural Drawing.

† Redgrave on Design, and the Grammar of Ornament, by Owen Jones, may be read for elementary principles.

‡ Based on Lindley's School Botany.

3. To answer, in writing, a paper on the History of Ornament of the various periods and styles, and a paper of questions on the elementary principles of Ornament and on the history and peculiarities of the Ornamentation of the class chosen for illustration in the Drawings sent up in Stage 22d.

4. To draw in a given time the bones or muscles, within the outline of an antique figure, from memory.

5. The living model will be posed for a time-study by each candidate.

. From Candidates who are, or have been, Students of the Royal Academy, and have been there admitted to study from the living model, this last exercise will not be required.

For the Third Group the following works are necessary, seven in number:—

- Stage 23. An Antique Figure shaded from the Cast, in chalk.
- " 2c. A study in Chalk from the Living Model.
- " 9. The bones and muscles placed within outlines of an Antique Figure.
- " 15. A painting of the Human Figure from a picture in oil.
- " 17a. A painting of the Nude or Draped Figure from the life, in oil.
- " 22a.* Varied studies of Historic styles of Ornament, sufficiently extensive to represent the history of the classes selected, sketched from works in the Museum, the authority in each case being appended. If they are from colored ornament, the sketches are to be colored also.

Fourth Group.

For the Fourth Group each Candidate—

1. Must already have obtained a Certificate for the First Group.

2. Will be required to answer in writing a paper of questions on the elementary principles of Ornament and on the history and peculiarities of the Ornamentation of the class chosen for illustration in the Drawings sent up in Stage 22d.

3. To sketch from memory Elementary details of Ornament, and in a given time to model a piece of ornament, in low relief, from a print or drawing.

For the Fourth Group the following works are required, five in number:—

- Stage 18a. A modeled study of Ornament from the Cast.
- " 18b. A modeled study of Ornament from a Drawing.
- " 20. A modeled study of Flowers or Foliage from Nature.
- " 22. A modeled study of any one of the sections of this stage.
- " 22a. A sheet of studies of some plant or plants, botanically analyzed with a view to display their ornamental details, drawn or modeled.
- " 22d. A set of studies executed during the period of training, from some one class of objects in the South Kensington Museum, sufficiently extensive to represent the history of the class selected.

Fifth Group.

For the Fifth Group each Candidate—

1. Must already have obtained a Certificate for the First Group.

2. Will be required to answer, in writing, a paper of questions on the anatomy of the Human Frame.

3. To answer, in writing, a paper on the History of Ornament of the various periods and styles.

4. To make, in a given time, a sketch in low relief, from a print or drawing of an antique figure; and to give the anatomical details from memory.

5. The living model will be posed for a time-study by each Candidate.

. From Candidates who are, or have been, Students of the Royal Academy, and there admitted to study from the living model, this last exercise will not be required.

For the Fifth Group the following works are required, six in number:—

- Stage 8. An Antique Figure shaded from the Cast.
- " 9. An anatomical rendering of an Antique Figure, modeled.
- " 9a. A drawing of the Skeleton placed within the outline of an Antique Figure.
- " 19. A model of an Antique Figure in the round, rendered in relief.
- " 20. A model of the Human Figure from Nature, nude or draped.
- " 22a.* Varied studies of the relief ornament of Historic styles sketched from the casts, carvings, metal work, &c., in the Museum of the Department, with written authorities for each; and sufficiently extensive to represent the history of the various classes selected.

* It is intended by these studies to test the knowledge of ornament possessed by the candidate; he should therefore send a sheet or sheets of the most characteristic details of the best periods of the various styles, and should give the source from whence the examples are derived. Candidates from provincial schools must use for the same purpose the works circulated by the Department, such as Casts, Electrotypes, Photographs, Books, Prints, &c.

MUNICIPAL MUSEUMS AND SCHOOLS OF SCIENCE AND ART.

INTRODUCTION.

MUSEUMS, for the exhibition of objects of natural history, specimens of animals, minerals and plants, of materials and implements of industry, and models of mechanical constructions, were originally treated in their management and purposes, as "collections of things rare and curious," as the founder of the British Museum designated his valuable treasures. Their uses in educating, through the eye, the popular taste, in illustrating the wisdom and goodness of God in the laws which govern every department of his creation, in marking the historical development of inventions in art, and discoveries in science, by which the dominion of man over the forces of nature has been achieved and extended—and above all their connection with scientific lectures, and regular schools of science and art, have only recently been seen. They are now regarded not only as useful but indispensable adjuncts in the system of popular instruction, especially in the department of industrial schools, and as such are objects of governmental and municipal appropriations, and of private beneficence. Before describing a few of the more prominent institutions of this class in the provincial towns of Great Britain, we will introduce portions of an introductory lecture in the Museum of Economical Geology in London, before the Royal School of Mines, by Prof. Edward Forbes, on the

EDUCATIONAL USES OF MUSEUMS OF NATURAL HISTORY.

Museums, of themselves alone, are powerless to educate. But they can instruct the educated, and excite a desire for knowledge in the ignorant. The laborer who spends his holiday in a walk through the British Museum, can not fail to come away with a strong and reverential sense of the extent of knowledge possessed by his fellow-men. It is not the objects themselves that he sees there and wonders at, that make this impression, so much as the order and evident science which he can not but recognize in the manner in which they are grouped and arranged. He learns that there is a meaning and value in every object however insignificant, and that there is a way of looking at things common and rare distinct from the regarding them as useless, useful, or curious,—the three terms of classification in favor with the ignorant. He goes home and thinks over it; and when a holiday in summer or a Sunday's afternoon in spring tempts him with his wife and little ones to walk into the fields, he finds that he has acquired a new interest in the stones, in the flowers, in the creatures of all kinds that throng around him. He can look at them with an inquiring pleasure, and talk of them to his children with a tale about things like them that he has seen ranged in order in the Museum. He has gained a new sense,—a thirst for natural knowledge, one promising to

quench the thirst for beer and vicious excitement that tortured him of old. If his intellectual capacity be limited and ordinary, he will become a better citizen and happier man; if, in his brain there be dormant power, it may waken up to make him a Watt, a Stephenson, or a Miller.

It is not the ignorant only who may benefit in the way just indicated. The so-called educated are as likely to gain by a visit to a Museum, where their least cultivated faculties, those of observation, may be healthily stimulated and brought into action. The great defect of our systems of education is the neglect of the *educating* of the observing powers,—a very distinct matter, be it noted, from scientific or industrial *instruction*. It is necessary to say this, since the confounding of the two is evident in many of the documents that have been published of late on these very important subjects. Many persons seem to fancy that the elements that should constitute a sound and manly education are antagonistic,—that the cultivation of taste through purely literary studies and of reasoning through logic and mathematics, one or both, is opposed to the training in the equally important matter of observation through those sciences that are descriptive and experimental. Surely this is an error; partizanship of the one or other method or rather department of mental training, to the exclusion of the rest, is a narrow-minded and cramping view from whatsoever point it be taken. Equal development and strengthening of all are required for the constitution of the complete mind, and it is full time that we should begin to do now what we ought to have done long ago. Through the teaching of some of the sections of natural history and chemistry,—the former for observation of forms, the latter of phenomena,—I can not but think the end in view might be gained, even keeping out of sight altogether, if the teacher holds it best to do so, what are called practical applications. For this branch of education, museums are the best text-books; but, in order that they should be effectively studied, require to be explained by competent teachers. Herein at present lies the main difficulty concerning the introduction of the science of observation into courses of ordinary education. A grade of teachers who should be able and willing to carry science into schools for youth has hardly yet appeared. Hitherto there have been few opportunities for their normal instruction. Now, in a great measure, this defect may be considered as removed; and in the metropolitan schools of science and art connected with the Board of Trade there are ample opportunities afforded for the acquirement of scientific knowledge in the required direction by persons who purpose to become educators.

In their educational aspect, considered apart from their educational applications, the value of Museums must in a great measure depend on the perfection of their arrangement and the leading ideas regulating the classification of their contents. The educated youth ought, in a well-arranged museum, to be able to instruct himself in the studies of which its contents are illustrations, with facility and advantage. On the officers in charge of the institution there consequently falls a serious responsibility. It is not sufficient that they should be well versed in the department of science, antiquities, or art committed to their charge. They may be prodigies of learning, and yet utterly unfitted for their posts. They must be men mindful of the main end and purpose in view, and of the best way of communicating knowledge according to its kind, not merely to those who are already men of science, historians, or connoisseurs, but equally to those who as yet ignorant desire to learn, or in whom it is desirable that a thirst for learning should be incited. Unfortunately museums and public collections of all kinds are too often regarded by their curators in their scientific aspect only,—as subservient to the advancement of knowledge through the medium of men of science or learning, and consequently as principally intended for the use of very few persons. This is not the main purpose for which the public money is spent on museums, though one of the very highest of their uses, and in the end of national consequence, since the surest measure of national advancement is the increase and diffusion of scientific and literary pursuits of a high grade. One of the signs of a spread of sound knowledge and intellectual tastes in a country is the abundant production of purely monographic works by its philosophers, and the evidence of their appreciation by the general mass of readers, as indicated by the facility with which they find publishers. * *

It has long been a subject of discussion, in what manner and to what extent can instruction by means of lectures and public teaching be advantageously associated

with public collections. There are those who are opposed to such a course, holding that museums should stand on their own exclusive merits, and be mainly places of personal study and consultation. This, however, is the contemplation of them under their scientific aspect only; and though it may fairly be maintained, that a great central collection, such as the British Museum, may be rendered most serviceable by this course of action, holding that magnificent establishment as a general index for science, and, as it were, *Encyclopædia of reference*,—I feel convinced, after a long and earnest consideration of the question for many years, that unless connected with systems of public teaching, museums in most instances are of little use to the people. The most useful museums are those which are made accessory to professorial instruction, and there are many such in the country, but almost all confined to purposes of professional education, and not adapted for or open to the general public. The museums of our Universities and Colleges are, for the most part, utilized in this way, but the advantages derived from them are confined to a very limited class of persons. In this Institution, an endeavor has been made to render its contents subservient to the cause of education and instruction; and the course which is here taken may be imitated with advantage in the provinces, where there are not unfrequently collections of considerable extent turned to small account for the benefit of the residents, a large proportion of whom in many instances are ignorant of their very existence. Yet it is to the development of the provincial museums, that I believe we must look in the future for the extension of intellectual pursuits throughout the land, and therefore I venture to to say a few words respecting what they are and what they should be.

When a naturalist goes from one country into another, his first inquiry is for local collections. He is anxious to see authentic and full cabinets of the productions of the region he is visiting. He wishes, moreover, if possible, to study them apart,—not mingled up with general or miscellaneous collections,—and distinctly arranged with special reference to the region they illustrate.

There are local collections arranged with skill and judgment in several of our county towns, and which at a glance tell us of the neighborhood and activity of a few guiding and enlightened men of science. It would be invidious to cite examples, and yet the principles, in each case distinct, adopted in the arrangement of those of Ipswich and Belfast ought especially to be noticed. In the former, thanks to the advice and activity of Professor Henslow, the specimens of various kinds, whether antiquarian, natural history, or industrial, are so arranged as to convey distinct notions of principles, practice, or history. In the Belfast Museum the eminent naturalists and antiquarians who have given celebrity to their town have made its contents at a glance explanatory of the geology, zoölogy, botany, and ancient history of the locality and neighboring province. The museums of Manchester, York, Scarborough, and Newcastle might be cited as highly commendable likewise, thanks to the science and ability of the eminent men connected with them, or who have taken an interest in their formation. It so happens, however, that the value and excellence of almost every provincial museum depend upon the energy and earnestness of one, two, or three individuals, after whose death or retirement there invariably comes a period of decline and decay.

In every museum of natural history, and probably in those devoted to other objects, there gradually, often rapidly, accumulates a store of duplicates that if displayed in the collection render it more difficult to be studied than if they were away altogether, occupying as they do valuable space and impeding the understanding of the relations and sequence of the objects classified. If, as is sometimes the case, they are rejected from the collection and stowed away in boxes or cellars, they are still in the way, for cellars and stowage,—as we know here, from the want of them, to our detriment,—are indispensable for the proper conducting of the arrangements of museums. Yet out of these duplicates, more or less perfect sets of specimens might be made up, of very high value for purposes of instruction. A well-organized system of mutual interchange and assistance would be one of the most efficient means of making museums generally valuable aids to education. Much money, when money is at the command of curators or committees, is spent in purchasing what might be obtained for asking or through exchange. Some objects of great scientific interest, but equally costly, might be purchased by one establishment only, and made fully as useful, instead of being bought in duplicate by two or more contiguous institutions. The larger institutions might supply the

smaller; and out of the national stores, numerous examples,—to them almost worthless, but to provincial establishments highly valuable,—might be contributed with facility and greatly to the public benefit.

It is in this way, viz., by the contribution of authenticated and instructive specimens, that the museums supported by the State can most legitimately assist those established from local resources in the provinces; the scientific arrangements of the latter might also be facilitated through the aid of the officers attached to Government institutions. Money grants would do in many cases, more harm than good, destructive as they are of a spirit of self-reliance, and apt to induce a looseness of expenditure and habits of extravagance.

At the same time, every shilling granted judiciously by the State for purposes of education and instruction, for the promotion of schools, libraries, and museums, is a seed that will in the end generate a rich crop of good citizens. Out of sound knowledge spring charity, loyalty, and patriotism,—the love of our neighbors, the love of just authority, and the love of our country's good. In proportion as these virtues flourish, the weeds of idleness, viciousness, and crime perish. Out of sound knowledge will arise in time civilization and peace. At present it is folly and self-conceit in nations to claim to be civilized, otherwise than as contrasted with savage barbarity. The admiration of physical prowess, the honoring of tinsel and pomp, the glorification of martial renown, are far too deeply inrooted yet in the spirit of the most cultivated nations to permit of the noble epithet "civilized," being appended to their names. The nobility of industry in all its grades,—first soul-work, the labor of genius,—then head-work, the labor of talent,—then hand-work, the honest labor of the body striving in the cause of peace,—must be honored by state and people, before either can with truthfulness claim to be civilized. We are at best as yet but enlightened barbarians. Think how all Europe and half Asia have stood for months,* and are even now standing, on the verge of foul and barbarous war; how Christian nations have girded on their armor, and, with mutual distrust and well-grounded suspicion, have stood with hand on sword-hilt ready to guard or to strike; think of what is worse, of the crime and ignorance that fester in the by-ways of Christian cities, and then boast of civilization if you can. The arts, the sciences, taste, literature, skill, and industry seem to have thriven among us in spite of ourselves,—to have come among mankind like good spirits, and by main force to have established themselves on earth. They struggle with us and conquer us for our welfare, but are not yet our rulers. Sent from Heaven, aided by the few, not by the many, they have made firm their footing. If the monarchs and presidents of the states of the earth knew wherein the best interest of themselves and their people lay, it is in these intellectual invaders they would confide. The cost of armaments and the keep of criminals would cease in time unproductively to drain their treasuries. But ambition and strife are sturdy demons yet, and the educator, who dreams of their enchainment, and anticipates the speedy approach of a peaceful millenium, has but a limited acquaintance with the condition of mankind, and the hearts of its governors.

I can not help hoping that the time will come when every British town even of moderate size will be able to boast of possessing public institutions for the education and instruction of its adults as well as its youthful and childish population,—when it shall have a well-organized museum, wherein collections of natural bodies shall be displayed, not with regard to show or curiosity, but according to their illustration of the analogies and affinities of organized and unorganized objects, so that the visitor may at a glance learn something of the laws of nature,—wherein the products of the surrounding district, animate and inanimate, shall be scientifically marshaled and their industrial applications carefully and suggestively illustrated,—wherein the memorials of the neighboring province and the races that have peopled it shall be reverently assembled and learnedly yet popularly explained; when each town shall have a library the property of the public and freely open to the well-conducted reader of every class; when its public walks and parks, (too many as yet existing only in prospect,) shall be made instructors in botany and agriculture; when it shall have a gallery of its own, possibly not boasting of the most famous pictures or statues, but nevertheless showing good examples of sound art, examples of the history and purpose of design, and, above all, the best specimens to be procured of works of genius by its own natives who

* This was written in 1853-4, on the eve of the Russian, French and English War.

have deservedly risen to fame. When that good time comes, true-hearted citizens will decorate their streets and squares with statues and memorials of the wise and worthy men and women who have adorned their province, not merely of kings, statesmen, or warriors, but of philosophers, poets, men of science, physicians, philanthropists, and great workmen. How often in traveling through our beautiful country do we not feel ashamed of its towns and cities, when we seek for their ornaments and the records of their true glories and find none? How ugly is the comparison that forces itself upon our minds between the conduct of our countrymen in this respect and that of the citizens of continental towns? A traveler need not go far through the streets of most foreign cities without seeing statues or trophies of honor, serving at once as decorations and as grateful records of the illustrious men they have produced,—reminding the old of a glorious past, and inciting by example the young to add to the fame of their native soil.

Since the delivery of the Lecture from which the foregoing extracts are taken, the English Government have enlarged and systemised its appropriations in behalf of Museums of Natural History, and Industrial Exhibitions and Instruction. In 1855-56, the expenditures by the "Department of Science and Art," under the Committee of Privy Council for Trade, amounted to £81,384, or about \$450,000. The Third Report of this Department, a volume of over 300 pages, made to and published by Parliament, in 1856, gives in detail the operations for the year 1855. The following summary gives, in a condensed form, the results:

The Museums and Libraries of the Department continue to be in an effective state, and have been visited by above 331,000 persons, being an increase of fifty-six per cent. above the numbers of the previous year. This increase is chiefly due to the new Circulating Museum of Ornamental Art, which has been visited by 55,701 persons in the provinces, and to the success which has attended the new arrangements made by the Department in regard to the Museum of Natural History in Edinburgh, resulting in an increase of the visitors from the old average of 800 to above 100,000.

The Botanical Gardens in Dublin have been visited by above 30,000 persons, and the Zoological Gardens by 138,000.

The Exhibitions of the Department have been attended by 72,000 persons.

The Geological Surveys in Great Britain and Ireland, and Mining Record Office, continue to be carried on with increased activity.

The Schools of Art, including the Training School in London, have been attended by nearly 12,000 pupils.

The number of children taught drawing in public schools, through the agency of the masters of Art Schools, amounts to 18,988; but although this is an increase of eighty per cent. above the return for last year, it is not sufficient to meet the public wants, and new measures are being devised to give increased development to elementary art instruction.

Instruction in art has been given to 2,181 teachers of public schools, and the results of their examinations have been more satisfactory than in preceding years.

The Schools of Science, which have this year increased considerably in number, the Working Men's Lectures in London, and provincial lectures in Ireland, have been attended by 10,000 persons.

Means of illustrating the courses of instruction by the diffusion of examples have been taken advantage of by 192 schools, at a cost to the schools of £1,510.

Expenditures and Operations in 1869.

In 1869, the sum of 10,692*l.* was expended on the Geological Museum, and School of Mines, besides a much larger sum on the Geological Survey, under the direction of Sir Robert I. Murchison. The maps and sections are published as rapidly as they can be completed. The Natural History branch is conducted by Prof. Huxley, and that of Palæontology by Mr. Etheridge. Mr. Hunt, the keeper of the Mining Record Office, has added 310 plans of new surveys of the coal fields and mineral districts, and sections of mines, and placed the mineral statistics in the most reliable condition.

ROYAL SCHOOL OF MINES.

Although under the nominal supervision of the Science and Art Department, this School is still administered by the Director-General of the Geological Survey. In 1868-69, there were 17 students (including 12 royal exhibitioners), and 93 different students in attendance on the special courses, viz.: 30 in chemistry; 11 in natural history; 14 in physics; 17 in geology; 5 in mining; 4 in mineralogy; 4 in metallurgy; 7 in applied mechanics; 1 in mechanical drawing. Besides the regular lectures, four special courses were delivered to working men, in the afternoon, with an average attendance of 600 artisans; and two evening courses, one in chemistry and a second in physics, were delivered to school teachers, with an attendance of 237 on the former, and of 180 on the latter. This Central School should have feeders in the various mining districts, where some familiarity with mining operations can be had, and the want of higher scientific instruction be brought home to the future engineers and foremen.

METALLURGICAL LABORATORY.

In 1868-9, thirty-five students in all, 14 in the spring term, 9 in the summer, and 12 in the winter, attended the laboratory practice in metallurgy, under Dr. Percy.

MUSEUM OF PRACTICAL GEOLOGY

The Museum was visited in 1869 by 47,506 persons, of which number, 26,871 were by day and 20,635 in the evening.

Mr. Scott Russell, while acknowledging the great value of its collections, and the reputation of its professors, complains that "its sphere of usefulness is sadly narrowed by the facts that it has neither the advantage of provincial technic schools, which lead to it; of coördinate institutions that educate analogous professions alongside of it; nor any thing above to which it leads up. It is a "lone school, of the advantages of which our millions of technical folks can not possibly avail themselves, save by a passing visit, or a rare holiday, or a rarer attendance on a lecture. With its valuable collections, it may become the nucleus of a larger and better-endowed organization—the favorite resort of working men, filled day and night with enthusiastic students, zealous, industrious, and ambitious."

The laboratories, collections, and teaching staff of the School of Mines, College of Chemistry, and Geological Survey, properly supplemented, would make a Central School of Science, with applications to construction, engineering, and manufactures of all kinds, worthy of the nation.

ROYAL COLLEGE OF CHEMISTRY.

The Royal College of Chemistry was established by a Stock Company in 1845 to provide facility for systematic laboratory practice in chemistry, in reference to the demands of agriculture and manufactures. The funds to provide a building and equipment were raised by subscription to memberships, which conferred some privileges assignable in the lectures, and manipulations of the laboratory. The institution was managed by a Council, and an Executive Committee.

The first Professor was Dr. Michael Hofmann, an eminent pupil of Baron Liebig, at Giessen, whose experience and reputation has led to his being recalled to Prussia, to superintend the construction of the two great Laboratories built by the government for the Universities of Bonn, and Berlin, for original research, and the highest practical teaching, at an expense for the two of near one million of dollars.

The first temporary laboratories were erected in George Street, Hanover Square, where the Practical School of Chemistry was opened in October, 1845. Permanent quarters were provided in a new structure erected on Hanover Square, the first stone for which was laid by Prince Albert, June 16, 1846, and better facilities for laboratory practice were provided than at that time existed in Great Britain. With the aid of the Royal Society, in 1850 and 1851, Dr. Hofmann undertook a series of experiments on vegetable alkaloids, and with Prof. Graham, of University College, and of Prof. Thompson, of Glasgow, and Professors Millar and Redwood, he carried on investigations of various kinds at the request of the Government, besides lecturing from 1847 to 1853, three times a week.

In 1853, the building, furnaces, and other fixtures, were transferred to the Department of Science and Art, and incorporated into its scheme of operations; but it seems practically to have been administered as an integral portion of the School of Mines, and the annual notice of its work for 1869 is included in the report of the Director-General of the Geological Survey, to which both institutions belong.

In 1869, there were 136 students in attendance on the regular courses of lectures, enjoying opportunities of manipulations and analysis in the Students' Laboratory, and the Laboratory of Research; in which together there is accommodation for only 48 pupils at the same time.

The chief professor, Dr. Frankland, who succeeded Dr. Hofmann, is allowed two assistants in the laboratory work, and is much employed in making investigations and analyses for different departments of the government. He delivered in 1869 a course of lectures, with illustrations in the laboratory, on teaching chemistry to a class of 26 science teachers.

All students but the Royal Exhibitioners pay an annual fee of 36*l*. The entire cost for one year of laboratory practice and the lectures is 42*l*.

Many improvements in manufacturing processes, in which chemistry is involved, have already been made by men trained as students in this College; and any student holding its first class certificate of proficiency commands ready employment in certain establishments.

The Director (Dr. Frankland) asks for larger and better accommodations to meet the increasing demand and put the laboratories on a footing with those of Karlsruhe, Zurich, and Berlin.

OWENS COLLEGE, MANCHESTER.

OWENS COLLEGE, in Manchester, was founded by the bequest of Mr. John Owens, a merchant of Manchester, who, dying in 1846, bequeathed the larger part of his property, amounting to nearly 100,000*l.*, to "trustees, to found an institution for providing or aiding the means of instructing or improving young persons of the male sex (and being of an age of not less than 14 years) in such branches of learning and science as were then, and might be thereafter usually taught in the English Universities." In addition to this bequest, which yields an income of 3,000*l.* a year, the trustees have received in benefactions of various kinds the sum of 20,000*l.*, which has been applied to scholarships, and to a chemical laboratory. The fees received from students amount to about 2,000*l.* a year, making a total income of 6,000*l.* in 1867.

The College was organized for the reception of students in 1851, the chemical department being the most important, in reference to Manchester being the center of the largest manufactures in which chemistry plays an important part, in the kingdom. To encourage the study of chemistry in its highest branches and applications, several scholarships, (named after the eminent chemist, Dr. Dalton,) to the value of 50*l.* a year, have been instituted. These scholarships are tenable two years, and the main condition upon which success in the examination rests, is the evidence of successful practical work in the laboratory. This scholarship was instituted in 1851, and since then (to 1869) it has been taken 9 times. The successful students at once find employment in the large works, or as teachers of science in other institutions. There is another scholarship, founded by Mrs. E. Shuttleworth, with the sum of 1,250*l.*, to promote the study of political economy. Mr. Whitworth has given to the college seven exhibitions of 25*l.* each for the purpose of encouraging candidates for the examination for his scholarships in mechanical engineering of the value of 100*l.* each. A fund of 10,000*l.* has been raised among the engineers of Manchester, to found the department of civil and mechanical engineering. The sum of 100,000*l.* has been recently raised for a general fund to provide suitable buildings and increase the facilities of scientific and literary instruction.

The attendance on the College in 1868 was about 500, distributed into day and evening classes—the former amounting to 170. These classes are arranged under the Art Course, comprising the usual secondary studies of a classical school, but including chemistry and French or German; or under the Science Course, which fits students for matriculation at the University of London at the end of the second, and for the final degree, at the end of the third year.

Although it is the aim of the Trustees to develop fully the scientific department of the College, they aim also to place the literary section on a broad and substantial basis, by having one or more professorships in each leading branch of knowledge—expecting to find among the people of Manchester the same enlightened appreciation of the value of literature and science which has prompted the people of Glasgow to raise the sum of near \$2,000,000 to enlarge and improve the facilities of higher learning in their ancient University.

There are now professorships of Greek and Latin, Hebrew and Arabic, English Language and Literature, French and German, History, Mathematics, Natural Philosophy, Chemistry, Natural History, Drawing, with the speedy prospect of a chair of applied Geology and Mining, and of Astronomy and Meteorology.

MIDLAND INSTITUTE AT BIRMINGHAM.

The Midland Institute at Birmingham was established in 1853, and its formal opening was inaugurated under the auspices of the attendance, and an address of Prince Albert, and of Lord Calthorpe, the President of the Institute, in which the great principles of industrial instruction were admirably set forth.

Lord Calthorpe, the President of the Institute, in his address in behalf of the Council, to Prince Albert, remarked that the enterprise was one of the results of the Great Industrial Exhibition of 1851, which had shown that to meet the sharp competition of French and other continental workshops in the markets of the world, the English manufacturer and workman must have a higher scientific and artistic training than was provided in existing institutions of education.

"In the design of the Birmingham and Midland Institute, the general features of a Literary and Scientific Institution are combined with those of a school of industrial science.

In the former department provision will be made for libraries, reading-rooms, museums of geology, mineralogy, and natural history, for collections of fine art manufactures, machinery, and mining records, and for lectures and discussions on literary and scientific subjects.

The industrial department, which has received the approval and assistance of the Board of Trade department of science and art, has been already opened with considerable success; it provides systematic lectures and class instruction in mathematics, mechanics, chemistry, and other branches of science which are specially applicable to the manufacturing and mining operations of the district.

It is also intended to provide in the same building improved accommodation for the Government School of Ornamental Art, which has long been established in Birmingham with the happiest success.

Such are the general features of an institution destined, as we hope, to advance not only the material, but also the moral welfare of this great community, by uniting men of all ranks and of divers opinions in the promotion of studies which add dignity to daily labor, enlarge the faculties, refine the tastes, and fill the heart with nobler conceptions of man's destiny, and of God's all-wise, all-bounteous love.

On this commanding site, liberally given for the purpose by the municipal corporation of the borough, a building is to be erected in which literature, science and art, may be worthily enshrined under one roof."

In a speech after the corner-stone was "well and truly fixed," Prince Albert uttered some truths which American manufacturers and workmen will do well to heed.

"Without a knowledge of the laws of nature which are set in operation in every workshop, we are condemned to one of three states: Either we merely go on to do things just as our fathers did, and for no better reason than because they did them so; or, trusting to some personal authority, we adopt at random the recommendation of some specific, in a speculative hope that it may answer; or, lastly—and this is the most favorable case—we ourselves improve upon certain processes; but this can only be the result of an experience hardly earned and dearly bought, and which, after all, can only embrace a comparatively short space of time, and a small number of experiments. From none of these causes can we hope for much progress; for the mind, however ingenious, has no materials to work with, and remains in presence of phenomena, the causes of which are hidden from it. But these laws of nature—these Divine laws—are capable of being discovered and understood, and of being taught, and made our own. This is the task of science; and, while science discovers and teaches these laws, art teaches their application.

Far be it from me to undervalue the creative power of genius, or to treat shrewd common sense as worthless without knowledge. But nobody will tell me that the same genius would not take an incomparably higher flight if supplied with all the means which knowledge can impart; or that common sense does not become, in fact, only truly powerful when in possession of the materials upon which judgment is to be exercised. The study of the laws by which the Almighty governs the universe is therefore our bounden duty. Of these laws our great academies and seats of education have, rather arbitrarily, selected only two spheres or groups (as I may call them,) as essential parts of our national education—the laws which regulate quantities and proportions, which form the subject of mathematics, and the laws regulating the expression of our thoughts through the medium of language—that is to say grammar, which finds its purest expression in the classical languages. These laws are most important branches of knowledge; their study trains and elevates the mind. But they are not the only ones; there are others which we can not disregard, which we can not do without. There are, for instance, the laws governing the human mind and its relation to the Divine Spirit—the subjects of logic and metaphysics. There are those which govern our bodily nature and its connection with the soul—the subject of physiology and psychology. Those which govern human society and the relations between man and man—the subjects of politics, jurisprudence and political economy, and many others. While of the laws just mentioned some have been recognized as essentials of education in different institutions, and some will, in the course of time, more fully assert their right to recognition, the laws regulating matter and form are those which will constitute the chief object of your pursuits, and as the principle of subdivision of labor is the one most congenial to our age, I would advise you to keep to this speciality, and to follow with undivided attention chiefly the sciences of mechanics, physics and chemistry, and the fine arts in painting, sculpture and architecture. You will thus have conferred an inestimable boon upon your country, and in a short time have the satisfaction of witnessing the beneficial results upon our national powers of production. Other parts of the country will, I doubt not, emulate your example, and I live in hopes that all these institutions will some day find a central point of union, and thus complete their national organization."

The evening instruction since provided by the Institute has done good, but the expectations formed on the opening have not been fully realized. The Borough, with a population of 300,000, and a surrounding manufacturing population, engaged in the iron, coal, glass, and jewelry trade, within a radius of thirty miles, of four-fold that number—has contributed in site and grants, from time to time, 28,000*l.*; but the leading capitalists and artisans have not provided such buildings, museums, laboratories and teachers as might have been expected from one of the chief industrial centres of England. By an inquiry instituted by one of her oldest manufacturers, it appears that in 1867 there were, in the special industries of the town, over 33,000 artisans, and that out of all engaged in the brass-foundry trade, there was not one capable of making an analysis; out of all engaged in the electro-metallurgical trade, not three had studied the art or process scientifically; of those engaged in the glass manufacture, there was but one (a Frenchman) who had any scientific knowledge useful in preparing material, staining, and other processes of that trade; of 8,000 persons engaged in the manufacture of jewelry and gilt toys, not one who understood the laws of heat, the principles of metallurgy, the chemical tests for the presence of any ingredient in excess, &c.

OLDHAM SCHOOL OF SCIENCE AND ART.

In Oldham there is a Lyceum—a sort of primary school for adults, in which geometry, algebra, trigonometry, and chemistry, are taught in an elementary way—but to the extent that men whose early education was defective can go in evening classes. This institution has also a library, reading room, and courses of popular lectures. In addition to these means of adult education, there is now a School of Science and Art, established mainly by Mr. John Platt, M. P., a large manufacturer of machinery, employing from 5,000 to 7,000 work-people, and aided by the grants of the Science and Art Department. The following was the Syllabus of the Studies of this School in 1868:—

SCIENCE.

I. Instruction is given in the following subjects by Thomas Mitchell, F.R.G.S., &c.:—

1. *Practical Geometry, Plane and Solid*.—Classes meet on Wednesdays and Fridays, from 7.30 to 9.30 P. M. Books recommended: Tate's Practical Geometry and Binns' Orthographic Projection (Gleig's series); or, for more advanced pupils, Burchett's Practical Geometry and Binns' Geometrical Drawing.

2. *Mechanical and Machine Drawing*.—Classes meet on Mondays and Tuesdays, from 7.30 to 9.30 P. M.

3. *Building Construction*.—Classes meet on Mondays and Tuesdays, from 7.30 to 9.30 P. M.

4. *Theoretical Mechanics*.—Text-book: Buckmaster's Elements of Mechanical Physics. Class meets on Thursdays, from 7.30 to 9.30 P. M.

5. *Applied Mechanics*.—Books recommended: Baker's Elements of Mechanism (Weale's series), and Tate's Elements of Mechanism and Exercises in Mechanics. Class meets on Tuesdays, from 8.30 to 9.30 P. M.

This school is well supplied with models, diagrams, and experimental apparatus, provided in accordance with the recommendation of the Science Department at South Kensington.

Fees for Full Course.—Artisans, 5s. per session; one-half to be paid at the commencement, and the other half at the end of the first three months.

Non-artisans and those who do not intend to sit at the Government examination, 10s. 6d. per session; to be paid in advance.

Day Classes.—Day classes are in operation for the study of practical machine and architectural drawing, and meet on Mondays and Fridays, at 3 P. M. Terms: 10s. 6d. per quarter of ten weeks.

Students are also trained for the professions of civil, mining, or mechanical engineering, draughtsmen, and surveyors, or for the competitive examinations of the Indian civil service engineers' department.

II. Classes for the study of the following subjects are conducted by J. Philip, M.A.:—

1. *Geometry*.—Original exercises, based on Euclid's Elements, are proposed one Friday and solved on the following Friday.

2. *Algebra*.—Regular progressive instruction is given, and the shortest method of operation exemplified on the blackboard.

3. *Trigonometry*.—A course of lessons in this subject will be commenced early in the session.

Students in book-keeping, mensuration, or other mathematical subjects, are also admissible to these classes.

Books: Euclid, Algebra, and Trigonometry, by Todhunter or Colenso. Classes meet on Mondays and Fridays, at 7.30 P. M.

III. C. F. Bahin, Ph.D., of the University of Giessen, will give instruction in

1. *Chemistry*.—The course of instruction is calculated to prepare students for the examinations which are held yearly by the Science and Art Department.

It comprises—1. The elements of inorganic and organic chemistry; 2. Qualitative analysis.

A suitable apparatus has been procured for performing the necessary experiments.

Terms: 5s. per quarter for non-artisans, and 2s. 6d. per quarter for artisans. Entrance fee, 5s. per session, for renewing materials. Ten lectures constitute one quarter. The class meets every Monday at 7.30, in the laboratory of the Lyceum.

Text-book: Buckmaster's Elements of Chemistry.

2. *Magnetism, Electricity, and Galvanism*.—Terms: 5s. per quarter for non-artisans, and 2s. 6d. per quarter for artisans. Entrance fee, 2s. 6d., for renewal of materials. Ten lectures constitute one quarter. The class will meet on Thursdays, at 7.30 P. M.

Text-book: Electricity, Galvanism, Magnetism, &c., of the Irish National School-book series.

IV. Vegetable Physiology and Economic Botany.—Teacher, Mr. C. Walters.

Fees for the Session.—Artisans, one lesson per week, 2s. 6d.; non-artisans, 5s. The class will meet on Saturdays, from 6.30 to 7.30 P. M.

ART.

Instruction is given by Mr. T. Haywood to:—

Classes for Drawing.—The course of study comprises the following subjects: Free-hand, landscape, perspective, and model drawing; flower painting, shading in chalk from the cast, &c.

Day Classes.—Elementary: Tuesdays and Fridays, from 3 to 5 P. M., 10s. 6d. per quarter. From 4 to 5 P. M., 6s. per quarter.

Advanced: Tuesdays and Fridays, from 3 to 5 P. M., 12s. 6d. per quarter. From 4 to 5 P. M., 7s. 6d. per quarter.

Evening Classes.—Elementary: Tuesdays and Fridays, from 7.30 to 9.30, 2s. 6d. per quarter.

Advanced: Tuesdays and Fridays, from 7.30 to 9.30, 4s. per quarter.

Non-artisans or others who wish to join the evening class, and be exempt from the Government examinations, elementary, 6s. per quarter; advanced, 10s. 6d. per quarter. All fees payable in advance.

The quarters of the public classes commence about January 15th, April 1st, July 25th, and October 1st.

Ten consecutive weeks constitute a quarter of the special classes, commencing at any time.

Mr. Platt, in his evidence before the Select Committee on Scientific Instruction to which he submitted the above Syllabus, remarks in substance: that while he was not prepared to admit that French or German workmen were superior to English workmen of the same class in scientific knowledge or practical experience, or turned out better work, he fully indorsed all that had been said by others, on the necessity of better elementary instruction for the whole people, and of special scientific and art instruction, first in local schools (like that of Oldham), and then in a more advanced degree at local colleges, like that of Owens College at Manchester; in which he helped to found a professorship of engineering—which should draw the pupils from a number of local schools within a given radius. After acquiring the theory in the school, and at intervals while at college, he should get practice by actual service in the workshop—in the aggregate for two years, before he leaves the college. While the Government should aid, every locality should contribute, and every pupil should be assessed fees, which he could meet by his success in obtaining scholarships, if clever and diligent. Mr. Platt has put his business on the coöperative system, allowing his workmen to have a share in the works, and thus feel the motive of a direct pecuniary interest in the result of their labor.

TRADE SCHOOL AT BRISTOL.

THE TRADE SCHOOL at Bristol was established on the suggestion of Rev. Canon Moseley, (then Inspector of Schools,) by converting a National School which had been established by the National Society and local subscriptions, on the Bell system, for the poor of that city, into an institution in which boys intended to become artificers, tradesmen, overseers, and clerks, could be trained specifically for such avocations, has now associated with it a Mining School, and evening classes for instruction in chemistry, geometry, and other studies.

The course of instruction embraces chemistry, organic and inorganic; theoretical and applied mechanics and experimental physics, including electricity, magnetism, and heat; descriptive geometry as applied to the construction of machinery and building; mathematics and drawing.

The pupils (average 140) are distributed first into the *lower*, which is of an elementary literary character, from which they pass into the upper, or science division. In 1867 there were 56 in the advanced class.

The school is supported by subscriptions (each subscriber of 3*l.* has the right of nominating a boy to the school without the payment of fees); by fees (fifteen shillings a quarter); and by grants on results from the Science Department, which constitutes about half the income—which is about 500*l.* a year.

The teaching force consists of a head-master, who adds to his income by lecturing in the medical school, and by private instruction in his laboratory, and four assistants, who also give instructions in other institutions.

The experience of the master of this school is strongly in favor of having facilities for teaching boys by actual practice in the construction of articles needed in the illustration of their studies, the use of common tools, such as a carpenter's bench, and tinman's bench, with lathe, &c.

BRISTOL MINING SCHOOL.

The Mining School at Bristol exists in connection with the Trade School established in that city in 1851, and owes its origin to the exertions of Mr. Mackworth, the Government mining inspector, and on his death, of Mr. Handel Cossam, who sustained it for three years by an annual expenditure of £100. The charge for each pupil is £7 per annum. The following scheme of instruction was pursued in 1868:—

First Year's course:—1. The different modes of working coal.

2. The different modes of ventilation; viz., natural, furnace, and mechanical.

3. The drainage of mines by pumping engines, and other contrivances.

4. Coal-drawing, and the engines and various mechanical expedients employed for that purpose.

5. The character of different coals.

6. Drawing and planning, with operations.

Second Year's course:—1. Hedley's ventilation.

2. Atkinson's papers on ventilation.

3. Atkinson and Coulson's papers on tubbing.

4. Nicholas Wood on underground tunnelage.

5. Hull's Coal Fields of Great Britain.

6. Elementary geology and chemistry, with the examination by analysis of coals, and the assay of the useful metals.

7. On boring, with the tools employed in sinking.

8. The pupils are each to produce a plan of a colliery establishment, with details; say depth 100 fathoms. Thickness of seam 5 feet. Inclination, 1 in 18. Water 250 gallons per minute. Coal required, 500 tons per day. The

seam supposed to be fiery. The royalty a tract of 500 acres. The pit supposed to have been at coal work three years. There must be a surface plan showing the situation of the engines and machinery, and also the railway and branches, narrow gauge, a section of the strata and details of the engines, pumps, cages, tubs, &c. An estimate of cost of establishment, and of working charge of coals; also a plan of the underground workings, shewing the ventilation.

CORNWALL MINING SCHOOL.

In 1843, Sir Charles Leman offered to the county of Cornwall a piece of ground on which to build a mining school, 500*l.* towards the building, and 20,000*l.* towards a permanent endowment, provided the county would impose and appropriate to the school a tax of a farthing on every ton of copper ore raised within the county. The offer was not accepted, but the school was opened at Truro under three professors, one of mechanics, a second of chemistry, and a third of mine-engineering, and was maintained for three years, at the expense of Sir Charles. Although several practical miners were trained in the school, the attendance of the pupils did not seem to justify the expense, and the enterprise in that form was abandoned; but under the leadership of Robert Hunt, Keeper of the Mining Records, and Inspector of Mining Districts, a Miners' Association was organized for the purpose of employing permanently one or more teachers to give instruction in chemistry, the use of the blowpipe, the ordinary processes of metallurgy, mineralogy, mechanics, and mechanical drawing, at such points as a class of at least ten practical miners could be gathered at. The attendance varies with the prosperity of the mining interests. As many as sixty students have been under instruction at the same time, at different mining centres. A small fee is collected of each member of the class, the Association paying part of the salary, the traveling expenses of the teachers, the apparatus, and the chemicals. The instruction is familiar and oral, with such simple experiments, problems, and diagrams, as the pupils can work out by themselves in the intervals of the meetings. The enterprise is a decided success. Mr. Hunt, in his evidence before the Select Committee, remarks:—

Similar classes might be established in the colliery districts at a very small expense. Once established, the most intelligent and most industrious colliers would attend and become acquainted with the principles and management of the safety lamp, of the laws of ventilation, and the coöperation necessary to its successful working, the conditions under which noxious gases from coal are evolved, and the means of their prevention and removal. In these as well as in other districts, proprietors should coöperate to establish these classes, or even well organized mining schools, and the government should encourage such efforts in view of the general benefits resulting from an improved condition of an intelligent population, and an increased production from scientific labor. As the groundwork of all special instruction, the whole community should have better elementary schools, which no authority short of Parliament can establish and administer. In both elementary and special instruction, the British miner is falling behind the German, especially in respect to improved machinery and new methods of assorting and extracting the ores. His prejudices and ignorance preclude the candid examination of suggested improvements. The subjects of elementary instruction in mining districts should be increased and varied, and with the older boys and girls, adapted to their probable vocation—with the former, more of natural science, and with the latter, of domestic economy, and with both, drawing. As the general intelligence of the community increased, the law of natural selection would come into operation, by which the steady and industrious would be drawn into classes, if opened, in which the laws regulating heat and hydrodynamics generally, and mathematics, steam, and mechanics, are taught. Such persons, with practical knowledge as the basis, would constitute suitable pupils for the Government School of Mines.

SCIENCE AND ART IN SCOTLAND.

INSTRUCTION IN SCIENCE AND ART IN SCOTLAND is provided in numerous incorporated institutions, and classes, in Edinburgh, Glasgow, and other large towns, several of which are aided by direct Parliamentary grants, or by the Science and Art Department, such as :—Science Professorships in the great Universities (8 of mathematics, 4 of chemistry, 3 of natural and experimental philosophy, 3 of botany, 2 of natural history, and 1 of civil engineering and mechanics), aided by annual grants of 4,000*l.*; the Museum of Science and Art, the Royal Institution with two Schools of Art (one for males and the other for female students), and the Watt Institution at Edinburgh; the Andersonian University, and Mechanics' Institute, and School of Art in Glasgow; the Navigation Schools at Leith, &c.

EDINBURGH MUSEUM OF SCIENCE AND ART.

The spacious and appropriate structure devoted to the purposes of the Museum of Science and Art, was erected in part by a Parliamentary grant, and ranks with the South Kensington Museum in London and the Royal College of Science in Dublin, in national importance.

The Museum is already large in both the departments of Industrial Art and Natural History, and both collections are made serviceable in instruction, both to visitors and students.

Seven courses of lectures for artisans were delivered in 1868–69 in the lecture hall of the Museum, with a total attendance of 1,386.

The Museum was visited by 131,238 persons by day, and 164,902 in the evening, and 13,138 on pay-days, making a total of 309,278 visits.

Large donations continued to be received to different sections of the Museum, by natives of Scotland residing abroad, and by individuals who desire to place their collections where they will be at once safe, and in position to be consulted and used.

ROYAL INSTITUTION.

The Royal Institution in Prince Street, Edinburgh, for the Encouragement of the Fine Arts in Scotland, originated in 1819, and incorporated in 1823, receives 2,000*l.* from the Board of Manufactures (established in 1727 for the encouragement of the fisheries and manufactures of Scotland, and which receives annually from government a grant of 4,500*l.* applicable to these purposes), for the prosecution of its object, viz., a permanent gallery, an annual exhibition of works of art, and two schools for instruction in drawing, painting, and modeling, and architectural and ornamental design. In connection with the Institution in 1869, two Schools of Art (begun by the Board of Manufactures in 1760), one for males and the other for females, were in efficient operation—which together gave instruction in drawing to 684 persons, and maintained special classes in different departments of art, for 200 pupils. These schools received from the Science and Art Department 448*l.*, including two prizes (one of 40*l.* and the other of 20*l.*) paid to the teachers in the National Competition.

The *Royal Society of Edinburgh*, instituted in 1720; the *Royal Scottish Academy of Architecture*, founded in 1826; the *Royal Association for the Promotion of the Fine Arts*; the *Botanic Garden*, founded in 1670; the *Royal Observatory*—are all serviceable to Science and Art in their industrial relations.

WATT INSTITUTION AND SCHOOL OF ARTS OF EDINBURGH.

THE SCHOOL OF ARTS* was founded in 1821, on the suggestion of Leonard Horner, and with the coöperation of Dr. Brewster (Sir David), Prof. Pillans, and other men of science, "for the avowed purpose of enabling industrious tradesmen to become acquainted with the principles of mechanics, chemistry, and other branches of science of practical application in their several trades." The introductory lecture was given Feb. 16, 1821, to a large audience of artisans, with this distinct announcement: "You must always bear in mind, that the School of Arts has been established for the purpose of giving you real and substantial instruction, and not to amuse a vacant hour and excite your wonder by exhibiting some curious and showy experiments." The School was opened by the issue of 452 tickets, and in 1869 upward of 1,100, and since 1821, upwards of 22,000 artisan students have received instruction in this people's college. The average age of the students is from 20 to 25. The instruction is given in the evening. The Institution has been widely useful in imparting scientific instruction to the artisans of Edinburgh and the neighborhood, and many men, now eminent as foremen and proprietors of works, and as engineers, owe their promotion and success to these evening classes.

The institution is maintained partly by fees from students, amounting in 1867-8 to 207*l*. (5*s*. for a single course; 7*s*. for two, and 10*s*. for all the instruction of a session of six months), and partly by subscriptions—a total annual expenditure of about 400*l*.

The course of instruction embraces: Chemistry, which extends through three sessions (although in each session there is a preliminary course of general chemistry for the benefit of new comers), natural philosophy, mathematics, and English. Architectural, mechanical, and ornamental scroll-drawing, and ornamental modeling, as well as the French and German languages, are also taught.

According to the Syllabus for 1866-67, the Class in mathematics was divided into two sections. To the Junior Section was assigned arithmetic, including square and cube roots; algebra, including quadratic equations; geometry and mensuration of surfaces. To the Senior Section or Class was assigned a revision of the higher parts of the Junior Course—Algebra, higher equations; geometry and trigonometry, and its applications to surveying, mensuration of heights and distances, and navigation; mensuration of surfaces and solids; construction and use of logarithms.

Diplomas issued on the attestation of at least three lecturers in their several departments, and after special examination by the instructors and committees of the school, are acknowledged as of considerable value among artisans, in seeking for situations of trust and responsibility in public works and large private establishments.

The Institution is now in affiliation with the Science and Art Department.

* The name of Watt was associated with the School of Arts in 1850, in consequence of the payment to the Directors of the School by gentlemen of a sum of money subscribed by them for the purpose of founding a Memorial to James Watt, who considered that the best way of realizing the object of the subscription was to associate his name with this Artisan's College. This sum was expended on a building now worth \$30,000. The subscribers erected a statue in stone to Watt in front of the School.

SCIENCE AND ART INSTRUCTION IN IRELAND.

INSTRUCTION IN SCIENCE AND ART in Ireland is provided in numerous central and provincial institutions, aided by charges on the Consolidated Fund, by direct Parliamentary grants, or out of appropriations made to the Science and Art Department, viz.:—Professorships of natural philosophy, chemistry, botany, geology, and mineralogy, in the Royal Dublin Society, since 1854 transferred to other institutions; School of engineering in Trinity College, instituted in 1840; Chairs of mathematics, physics, chemistry, and natural sciences, and Departments of engineering and practical science in the Queen's Colleges in Belfast, Cork, and Galway, established in 1849; Model agricultural schools, and the Albert Agricultural Institute at Glasnevin, under the Commissioners of National Education; the Schools of Art, and Schools of Navigation, and Classes of Science, under the Government Science and Art Department; the Royal College of Science for Ireland, the Royal Dublin Society, and other central and provincial schools. The College possesses a valuable Museum.

ROYAL COLLEGE OF SCIENCE FOR IRELAND.

THE ROYAL COLLEGE OF SCIENCE, in Dublin, instituted or rather reorganized in 1867, is now in successful operation, with not a large number of students (32 in 1869) in the regular course, and 5,773 in its special and miscellaneous courses delivered in connection, but with an adequate teaching force and a well-defined plan of instruction, as will be seen from the following

PROGRAMME FOR THE SESSION 1869-70.

The Royal College of Science supplies, as far as practicable, a complete course of instruction in science applicable to the industrial arts, especially those which may be classed broadly under the heads of mining, agriculture, engineering, and manufactures, and is intended to aid in the instruction of teachers for the local schools of science.

Subjects of Instruction.

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|--|--|
| 1. Applied Mathematics. | 8. Geology and Palæontology. |
| 2. Descriptive Geometry, and Mechanical Drawing. | 9. Mineralogy. |
| 3. Mechanism. | 10. Agricultural Science. |
| 4. Physics. | 11. Mining. |
| 5. Chemistry, Theoretical and Practical. | 12. Applied Chemistry, including Metallurgy. |
| 6. Botany. | 13. Machinery. |
| 7. Zoology. | 14. Surveying. |

Under Applied Mathematics is taken the application of Mathematics to those sciences generally included under the head of Mechanics, viz., Statics, Dynamics, Hydrostatics, and Hydrodynamics, as well as to some other branches of Physics.

Under Mechanism is treated only the relations of motion, or the study of machines merely as contrivances for changing one kind of motion into another, apart from any considerations of force.

Under Machinery is treated the application of Mechanics and Mechanism to machines used in the industrial arts.

Chemistry includes both lectures and laboratory practice.

The course of instruction extends over three years, each year being divided into two terms. In the first two years the instruction is general. In the last year it is specialized under the heads of Mining, Agriculture, Engineering, and Manufactures. The scheme of instruction is the following:—

First Year.

1st Term.
Applied Mathematic
Physics.
Descriptive Geometry.
Geometrical Drawing.

2d Term.
Applied Mathematics.
Physics.
Botany.
Descriptive Geometry.
Geometrical Drawing.

Second Year.

Applied Mathematics.
Chemistry (Theoretical).
Chemistry (Practical).
Mechanical Drawing.

Applied Mathematics.
Chemistry (Theoretical).
Chemistry (Practical).
Zoölogy.
Mechanical Drawing.

Students entering for the associateship are expected to be acquainted with the first two books of Euclid and the elementary rules of Algebra. Some familiarity with the use of the ordinary drawing instruments is very desirable.

In their first and second years they are required to attend all the courses in the subjects appointed for these years. In their third year they are required to attend all those belonging to any one division, as follows:

*Third Year.**Division A.—Mining.*

Geology, with demonstrations in Palæontology. Mechanism and Machinery.
Mineralogy and Mining. Assaying and Metallurgy. Land Surveying.

Students in this Division are required to attend the lectures of the Professor of Geology, with demonstrations in Palæontology; also those of the Professors of Mining and Mineralogy, of Mechanism, and of Land Surveying. The laboratory instruction will comprise a course of Assaying and Metallurgy.

Division B.—Agriculture.

Geology. Mechanism and Machinery.
Agricultural Science. Analysis of Soils and Manures.
Land Surveying.

Students in this Division are required to attend the courses in Geology and Palæontology; also the course of the Professor of Agriculture. They likewise receive instruction in Mechanism and Machinery and in Land Surveying, and also laboratory instruction in the Analysis of Soils and Manures.

Division C.—Engineering.

Mechanism and Machinery. Mechanical Drawing, Engineering, and Surveying.
Geology and Palæontology.

In this Division the students are required to attend the courses of the Professor of Applied Mathematics, and those of the Professor of Descriptive Geometry in Mechanical Drawing, Engineering, and Land Surveying, also that of the Professor of Geology, with demonstrations in Palæontology.

Division D.—Manufactures.

Applied Mechanics, and Physics.
Applied Chemistry, and Technical Analysis.

Students in this Division are required to attend the lectures of the Professor of Applied Mathematics and of the Professor of Applied Chemistry, and to go through a further course of Practical Chemistry.

The Demonstrator in Palæontology gives instruction, during the second term of the session, to students of the third year. These demonstrations are also open to any student who attends, or has during the preceding session attended, the lectures either of the Professor of Geology, Zoölogy, or Botany.

A diploma of associateship of the College will be given to students who pass in all the subjects of the first two years, and of any one division of the third year. Students may also enter for the separate courses, and receive certificates after examination. A certificate of attendance in the chemical laboratory is not given for any course less than three months.

The course of instruction in this College is recognized by the Secretary of State for India as qualifying for appointments in the Engineering Department.

There are four Royal Scholarships of 50*l.* yearly each, with free education,

tenable for two years; two will become vacant each year. They will be given to students who shall have been a year in the College.

There are also nine Royal Exhibitions attached to the College of 50*l.* each, tenable for three years.

These Scholarships and Exhibitions are tenable only on the condition that the holders shall attend all the lectures of their respective years. This condition is strictly enforced by the Department. They must also pass the examinations at the end of the session.

Students at the conclusion of their first academic year are examined in the subjects of that year. Prizes are awarded for superior answering in each branch. The award of the Royal Scholarships is made on the result of this examination, to those students, not Royal Exhibitioners, who on the whole have answered best, if sufficiently deserving to be recommended for them.

At the conclusion of the second and third year, similar examinations are held and prizes awarded.

A medal is awarded at the conclusion of the second year to that student who, on the total results of both years, shall have most distinguished himself, if sufficient merit be shown.

To candidates for the associateship whose knowledge of pure mathematics is not sufficiently advanced, the Professor of Applied Mathematics gives such instruction as is necessary. These lectures may be attended by other students. Prizes will be awarded for proficiency at the end of the first and second years.

During the session, short courses of evening lectures of a more popular character will be delivered, the particulars respecting which will be duly announced.

The Chemical and Metallurgical Laboratories, under the direction of Professor Galloway, are open every week day during the session (except Saturday, and the usual holidays) from 10 A. M. to 4 P. M.

The library contains carefully-selected works, and is open to the students, and also to the public under certain restrictions.

The Museum is open to the public on week days from 11 A. M. to 4 P. M.

The session commences on the first Monday in October in each year, and lasts until the 21st June following, with a vacation of ten days at Christmas, and of a week at Easter.

The first term commences on the first Monday in October, and the second term on the first Monday in February.

The examinations are held at the close of the session.

The fees, in all cases payable in advance, are,—

2*l.* for each separate course of lectures;

And for laboratory practice, 2*l.* per month, 5*l.* for three months, or 12*l.* for the entire session.

Students entering for the purpose of obtaining the diploma of associate, or intending to compete for the scholarships, pay 10*l.* each year, which will admit them to all the courses of that year, exclusive of laboratory—or 25*l.* for the whole studentship of three years.

The holders of Royal Scholarships or Royal Exhibitions pay no fees.

STAFF OF INSTRUCTION, 1869-70.

Dean of Faculty—SIR ROBERT KANE, LL.D., F.R.S., M.R.I.A.

Professors—Physics—WILLIAM BARKER, M.D., M.R.I.A.

Chemistry—WILLIAM K. SULLIVAN, Ph.D., V.P.R.I.A.

Applied Chemistry—ROBERT GALLOWAY, F.C.S.

Geology—EDWARD HULL, F.R.S.

Applied Mathematics—ROBERT BALL, M.A.

Botany—WYVILLE THOMSON, LL.D.

Zoology—RAMSAY H. TRAQUAIR, M.D.

Agriculture—EDMUND W. DAVY, M.B., M.R.I.A.

Descriptive Geometry—THOMAS F. FIGOT.

Mining and Mineralogy—J. P. O'REILLY.

Librarian and Curator of Museum—ALPHONSE GAGES, M.R.I.A.

Palaeontological Demonstrator—W. H. BAILY, F.L.S., F.G.S.

Assistant Chemist—WILLIAM PLUNKETT, F.C.S.

Clerk—GEORGE C. PENNY.

Secretary—FREDERICK J. SIDNEY, LL.D., M.R.I.A.

ROYAL DUBLIN SOCIETY.

THE ROYAL DUBLIN SOCIETY was originally founded to encourage husbandry, and has from its first institution received large government grants in aid of its operations. It was associated with the Science and Art Department in 1854, and the professorship of agriculture, for many years attached to its operations, was in 1864 transferred to the College of Science.

At the close of 1869 there were 1,254 members. Its operations consisted of:

1. *Evening Meetings* of the members for the discussion of subjects of applied Science and Art, were held on the third Monday of each month, which had an average attendance of 96 persons at each meeting. The papers read, and proceedings, were published in the Journal of the Society.

2. *Scientific Lectures* were delivered on the afternoon of every Saturday in March, April, and May, which were attended by 3,714 persons. The substance of the lecture was published in the Journal.

3. The *Botanic Garden at Glasnevin*, with its experimental grounds, its exchanges and donations of plants, flowers, and seeds, and its Botanical Museum, has been maintained in a high degree of efficiency, and visited by 50,936 persons on week-days, and 172,600 on Sundays.

4. The *Museum of Natural History*—rich in geological, palæontological, mineralogical, and zoological collections—was visited by 31,975 persons, and the *Library* was consulted by 18,375 individuals.

5. The *Agricultural Department* included four exhibitions:—(1,) of cattle in April; (2,) of horses in August; (3,) of sheep in September; and (4,) of fat stock, poultry, and farm and dairy produce, in December, attended in the aggregate by 21,184 persons:—encouragement for the cultivation of flax:—the Agricultural Museum, which was visited by 18,500 persons.

6. The *Art Department*, embraced in a *School of Art*, which in the day classes was attended by 293 students (64 males and 229 females), and morning and evening classes by 242 artisans (214 males and 28 females), an aggregate attendance of 535 students; an annual and competitive examination for prizes; an exhibition of works of art; lectures on the Fine Arts, and a course on anatomy applied to art, which was attended by 805 persons.

7. The provincial lectures, and the instruction by a special professorship in agriculture, have been transferred to the College of Science.

ROYAL ZOOLOGICAL SOCIETY.

The *Royal Zoological Garden*, which receives a public grant of 500*l.* from payments of members 343*l.*, and from the sale of tickets at the entrance gate, 1,046*l.*, was visited by 136,052 persons; and the lectures and discussions on comparative anatomy, and veterinary surgery, were largely attended.

ROYAL HIBERNIAN ACADEMY.

The annual exhibition of works of fine art (892), realized 205*l.* out of the sale of 16,001 tickets; and the School of Art was attended by 60 students. The Academy receives a special grant of 300*l.*

MUSEUM OF IRISH INDUSTRY.

This Museum was founded by the government in 1845, and has heretofore received an annual grant of 4,336*l.*, a portion of which was expended on scientific lectures in the large provincial towns. A portion has been transferred to the Dublin Society, and another portion to the College of Science.

SCIENCE IN LITERARY INSTITUTIONS—OLD AND NEW.

It is only within the last twenty years that the claims of mathematics and the natural sciences in their application to practical life, and of the languages and literature of nations now controlling the destinies of the world, to an assured place in any and every course of liberal education, have been so boldly and widely asserted as to secure even a partial recognition. Even now a member of Parliament, and a prominent member of the Government (Hon. Robert Lowe), feels himself justified in using the following language in respect to the education given in the Public Schools and Universities of England:—

Our education does not communicate to us knowledge, it does not communicate to us the means of obtaining knowledge, and it does not communicate to us the means of communicating knowledge. These three capital deficiencies are undoubted; and what makes these so painful is the thought of the enormous quantities of things eminently worth knowing in this world. I have spoken only of modern history, of modern languages; but what are modern history and languages compared with the boundless field that nature opens out—with the new world which chemistry is expanding before us—with the old world that geology has called again into existence—with the wonderful generalization with regard to plants and animals, and all those noble studies and speculations which are the glory and distinction and life-blood of the time in which we live, and of which our youth remain, almost without exception, totally ignorant? It is not too much to say, that the man who becomes really well educated must begin his education after it has closed. After all had been done for him that the present miserable, contracted, and poor system can do, he has to begin and educate himself over again, with a feeling that he has wasted the best and most precious years of his life on things neither useless nor unprofitable in themselves, but which were the mere by-paths or appanages to the knowledge which constitute the mental stock of a man of erudition.—*An Address at Edinburgh, Nov. 1, 1867, "On Primary and Classical Education."*

ENDOWED PUBLIC SCHOOLS.

The endowed schools of the highest grade, and particularly *the Public Schools*, as Eton, Harrow, Rugby and a few others are called, in connection with the requirements for matriculation at the Universities, determine the studies and culture of the educated and governing classes of England, and influence powerfully in the same direction the studies of all adventure and private schools. Into the curriculum of these schools is put as much of the languages and literature of ancient Rome and Greece, their history, geography, and polity, as can be crowded into an industrious school life of eight or ten years, to be supplemented by four years of university labor, stimulated by every form of rewards and honors, scholastic, ecclesiastical and state, which the garnered endowments of centuries of individual beneficence, bestowed in reference to a state of learning, society, and government which has passed away, can produce. Under the influence of these endowments, and the habits and traditions which permanent schools of great reputation foster in families and the community,—mathematics, natural science and modern languages, with the literature, arts, and political constitutions and relations of the great nations of our own day, have been, to a great extent, excluded from the higher education of Englishmen—except of the small number who have educated themselves after leaving the public school or the university, or have enjoyed the advantages of the few great schools which have been forced into existence by the exigencies of modern society.

UNIVERSITIES.

Until quite recently the whole influence of fellowships, scholarships, prizes, and honors, and almost the entire teaching of the great universities of England, were exerted and felt in other directions than those of scientific education, or in training the men who became the leaders in the principal national industries as capitalists, engineers, and foremen in a practical knowledge of the principles of science. But few representatives of these classes, except the first, thought of sending their sons to Oxford or Cambridge, with any expectation of their following the same profession or occupation, out of which not a few have emerged into great affluence and high social and parliamentary distinction.

Cambridge.

Prof. G. D. Liveing writes in 1868 to a member of the Select Scientific Committee, substantially as follows:—"The University has strained its resources to supply museums of natural science, chemical laboratories, and other facilities for the study of natural sciences, both practically and theoretically. The number of students in these sciences is small, but is gradually increasing, and the University recognizes such studies as a pathway to a degree or to honors, and several colleges (Trinity, St. John's, Caius, Sidney, Downing) have held out the offer of rewards in the way of scholarships for proficiency in the same studies. These measures will do something slowly to supply teachers and diffuse sound scientific knowledge, but will not reach soon, if ever, even the master manufacturers. At present the traditions and habits of the place practically exclude young men, whose parents design them to pursue their own occupation. The University ought to assist that class by opening the examinations in science to non-collegiate students, and to require a brief residence of those who desire to pursue special courses. We have great facilities here for treating science, the laws of nature and their relations to each other, in a philosophical way, and for teaching the several branches side by side; with the prevalence of mathematical study, an exactness and logical consistency in the scientific instruction can be attained more readily, than if this instruction was attained in the laboratory or workshop alone."

Oxford.

Under the discussions of the last ten years scientific instruction has made great progress in Oxford, and theoretically the class-man in science stands nearly on a par in competition for honors with the class-man in classics. A new building has been erected at a cost of 10,000*l.* for physics, a museum of necessary apparatus and appliances has been established with an annuity to provide for additions, a professorship of experimental philosophy with an assistant has been instituted, and opportunities of studying thoroughly mathematics, astronomy, geology, botany, zoölogy, and almost every science which admits of application to the great national industries, exist. The difficulty in the way of the future engineer, machinist, chemical technologist, and practical manufacturer generally, is not the absence of instruction, but in the length and cost of residence, the modes in which the instruction is given, and the general tone and habits of university life. Before science teachers even will go up to Oxford to be properly qualified, there must be practical as well as theoretical equality with the language teachers in the conditions of study and promotion.

University of London.

The University of London was the first in exercising its function of conferring degrees, to introduce into its matriculation examination, and into its programme of study on which the degrees are obtained, a certain amount of science; and also to confer special degrees in science.

The matriculation examination is the test of a good school education—the common trunk from which all the higher studies should diverge. Into that examination, the elements of natural philosophy, mathematics, as far as algebra and geometry, and chemistry, enter. For the present, a sound elementary knowledge of Latin and Greek, or for the Greek a sufficient knowledge of French or German to read a scientific work understandingly, is required.

The Bachelor's Degree in science is given after an examination conducted by experts in mathematics, mechanical philosophy, animal physiology, botany, chemistry (either inorganic, or organic, or their applications), moral philosophy, and the science of reasoning. The programmes on which the examinations are conducted were drawn up, in chemistry by Faraday, and on organic science by Huxley, Hooker, and Carpenter.

The Degree of Doctor of Science is conferred on successful candidates, who, having become Bachelor, have gone through a general course of scientific study, and attained a certain amount of proficiency in several related branches, have devoted themselves to the thorough mastery of at least one science.

The experience of the London University examiners for science and other degrees is of great importance in forming a correct judgment on the relative disciplinary values of different studies. Dr. William B. Carpenter says:

I am perfectly convinced that elementary science is capable of being taught to pupils in all ranks of life, of both sexes, with very great advantage. It tends to develop faculties which are kept undeveloped and even repressed, by ordinary systems of culture. I am quite sure, from my own experience as a teacher, that the simple truths of science are built up very readily on a foundation of ordinary experience, in a child of ordinary apprehension. I have been constantly struck with the want of any ordinary scientific teaching in schools, and especially of the combination of pure science with the practical applications of it. The great value of natural history is in the encouragement of observation and correct description. The late Prof. Henslow devised a method of teaching botany which was remarkably effective in that respect with young boys and girls in a village school. The effect of it was, the girls in particular became livelier and brighter than other girls of the same age. The observing faculties of children from ten to twelve years of age are extremely active, and under a good teacher they readily apprehend the bearing of the facts they observe. Boys who are dull in the acquirement of languages will often be amazingly brightened up if they go into the chemical class; and will return with fresh zest and vigor to their classical studies. A small amount, a taste even for scientific knowledge, furnishes a basis to which more is easily added, and it develops the power of apprehension which makes it easy to acquire knowledge.

Before the universities can do the higher work of scientific instruction, the pupils must be better prepared to receive and participate in it, in the secondary schools below. A beginning has been made in this direction by the introduction of elementary instruction in chemistry, geology, and botany, at Rugby, Harrow, and Eton, and more systematically into the modern schools of Cheltenham, Marlborough and Wellington. It will be found easier in many places to establish new schools like those last mentioned, than to modify essentially schools which are fortified against modern ideas by endowments.

SCIENCE IN UNIVERSITIES OF SCOTLAND.

It was a cardinal idea of John Knox, that boys should not leave school until they had devoted a proper time to "that study which they intend chiefly to pursue for the profit of the commonwealth."

The four Universities of Scotland for many years have given more instruction in science than the Universities of England; and the instruction in them generally is better adapted to the demands of practical life. Hence they have a stronger hold on the people, and have a larger attendance in proportion to the population than in any other part of Great Britain. In 1868, according to Prof. Playfair, in his evidence before the Select Committee on Scientific Instruction, there was one university student for every 866 of the Scotch population, while there was only one for every 5,455 of the population of England, and one for every 2,894 of the population in Ireland. The parochial schools, which in the larger parishes are taught by graduates of the Universities, and the burgh schools, which exist in all the cities and large centres of population, are the natural feeders of the National Universities.

In the University of Glasgow several of the most eminent engineers and practical chemists of the United Kingdom received their scientific training; and natural philosophy and mathematics have always received special attention.

In the University of Aberdeen there are every year a few lectures on Agriculture, but no special professorship.

In the University of Edinburgh there is a professorship of engineering, and another of agriculture and veterinary surgery, in each of which sciences there is now a scheme of graduation as follows:

GRADUATION IN SCIENCE IN UNIVERSITY OF EDINBURGH.

The degrees of bachelor of science (Sc. B.) and of doctor of science (Sc. D.) are given in the following departments of science:—

Division I.—PURE SCIENCE.—Section A.—Physical and natural science. Section B.—Mental science. Section C.—Philology.

Division II.—APPLIED SCIENCE.—This comprises: Section A.—Agriculture. Section B.—Engineering (civil and mechanical). Section C.—Veterinary surgery.

DIVISION II.—APPLIED SCIENCE.

All candidates for the degrees in Applied Science must give proof of having received a liberal education by being either—

- 1.—B. A. or M. A.
- 2.—M. B. or M. D.
- 3.—Sc. B. or Sc. D.
- 4.—Holders of two departmental certificates in the Faculty of Arts.
- 5.—Matriculated students of the University of London.

Or failing any of these qualifications, the candidate must pass a preliminary examination in English, Latin, logic, arithmetic, the elements of mathematics and mechanics, and either Greek or two modern languages (of which French must be one), as an alternative for Greek.

The examination will be the same as that required of medical students.

The department of "Applied Science" is divided into—

- A.—Agriculture.
- B.—Engineering and mechanical science.
- C.—Veterinary surgery.

A.—There will be two examinations for the degree of bachelor of agriculture (Agr. B.), and one for that of master of agriculture (Agr. M.) The examinations will be both written and oral.

The first examination is the same as that required for the first examination in the case of Sc. B., and relates to the knowledge of the candidate of the following subjects:—1. Mathematics. 2. Chemistry. 3. Botany. 4. Geology. 5. Zoology. 6. Experimental physics.

This examination is compulsory on all candidates who do not possess the following qualifications:—

A.—Masters of arts who have taken honors in the natural sciences.

Masters of arts who have not taken honors in the natural sciences are exempted from mathematics and experimental physics only.

B.—Bachelors and doctors of medicine who have taken honors in the natural sciences at their professional examinations, and who have passed in higher mathematics, natural philosophy, and logic, in their extra professional or preliminary examinations.

C.—Holders of certificates from the classes in science devoted to the foregoing subjects in the University of Edinburgh, showing that the candidate obtained 80 per cent. of the available marks during the session. Any of the subjects cleared by such a certificate will be omitted from the written examination.

The candidate who has passed successfully this examination may present himself at the next examination for his degree of bachelor of agriculture (Agr. B.)

For this examination the candidate must produce certificates of acquaintance with practical agriculture, and is required, with the view of specializing his studies, to profess *one*, and not more than one, of the following groups of subjects, with their practical relations to agriculture:—

A.—*Natural Sciences*.—Botany—Geology—Zoology.

B.—*Experimental Science*.—Chemistry—Physics.

C.—*Mechanical Science*.—Mechanics—Engineering.

The certificates of the Royal Agricultural Society, the Highland Society, and the Royal Agricultural College, will be accepted for practical agriculture.

Successful candidates who have thus acquired the degree of Agr. B. may, at the next period of examination, provided they have attained the age of 21, proceed to the examination for the degree of master of agriculture (Agr. M.)

For this degree the candidate will be required to submit to a searching examination on *one* of the following subjects, in its special relation to agriculture.

A.—Agricultural chemistry—organic and inorganic.

B.—Agricultural mechanics.

C.—Engineering (civil)—surveying, draining, &c.

D.—Natural history—botany, geology, &c.

E.—Animal physiology—breeding, rearing, &c., of animals.

Should the candidate pass successfully this examination, he will receive the degree of master of agriculture (Agr. M.)

The examinations for degrees will be conducted by university examiners, and an examiner appointed by the Highland Society.

B.—*Engineering—Civil and Mechanical*.—1st. All candidates for a degree in engineering must have the qualifications required for matriculation before passing a science degree.

There will be two examinations in engineering for the degree of *bachelor of engineering* (Sc. Mach. B.), and a third for the degree of master of engineering (Sc. Mach. M.) The examinations will be both written and oral. The first examination is as to the general knowledge of the candidate on the following subjects:—1. Mathematics. 2. Natural Philosophy. 3. Chemistry.

This examination is called the first bachelor of engineering examination, and is compulsory on all who do not possess the following qualifications:—

A.—Masters of arts who have taken honors in the departments of mathematics or natural science.

B.—Bachelors in science in the University of Edinburgh or London.

C.—Graduates in science who have passed the first bachelor of science examination in the University of Edinburgh.

The candidate who has successfully passed the first bachelor of engineering examination may proceed to the second examination, which is to be entitled the second bachelor of engineering examination.

The candidate will be examined in the following subjects:—

- (A.) Mathematics applied to mechanics.
- (B.) Engineering:—Civil engineering, mechanical engineering, surveying and leveling.
- (C.) Drawing.—Geometrical projection, mechanical drawing, plans and surveys.

The candidate having passed successfully the first bachelor of engineering examination (or having the qualifications necessary to escape this examination), after passing with approval the second examination, shall be recommended to the Senatus for the degree of bachelor of engineering.

This degree will indicate that the student has received such a preparation as will qualify him to enter with advantage the office of a civil engineer or the workshop of a mechanical engineer as a pupil.

Should the candidate desire to become a master of engineering, he may present himself for a third examination. All candidates for this degree must prove that they have passed at least two years as a pupil under a civil engineer in practice, or in a mechanical workshop. He must then profess one, and not more than one, of the subdivisions in each of the two following groups of subjects:—

- 1st. *Practical Engineering*.—(a.) The design of machinery, with complete drawings, specifications, and estimates. (b.) The preparation of designs, specifications, and estimates for some civil engineering work.
- 2d. *Applied Science*.—(a.) Applied mathematics. (b.) Chemistry. (c.) Geology. (d.) One branch of experimental physics. (e.) Telegraphy.

The class of machinery, or the nature of the engineering work in which the student is examined, will be chosen with reference to the special work in which he has been engaged during his pupilage.

This degree will indicate that the student is qualified to practice the profession of an engineer.

The examination for degrees will be conducted by University examiners, and an examiner appointed by the Institute of Civil Engineers.

For the degrees in sections A. and B. (agriculture and engineering), the same rates will be charged as for the degrees in science.

C.—*Veterinary Surgery*.—The University of Edinburgh propose to institute a degree in veterinary surgery, open to qualified students of all the veterinary schools in Great Britain who comply with the regulations laid down for such degree.

All candidates for examination for such degree must be 21 years of age, and have obtained by examination a veterinary diploma or license from some recognized teaching or licensing body in Great Britain.

This diploma or license will be accepted as satisfactory evidence of the candidate's general education, and of his acquaintance with the groundwork of his profession, and will exempt him from the preliminary and the "bachelor's" examinations, required in the other sections of the department of applied science.

Candidates will be also required to produce certificates of attendance upon at least three out of the following list of classes in the University of Edinburgh:

1. Anatomy. 2. Institutes of medicine (physiology). 3. Surgery. 4. Natural history. 5. Botany. 6. Agriculture.

Candidates thus qualified will be admitted to examination for the degree of master of veterinary surgery (C. V. M.)

The examinations in all the above subjects, in their applications to veterinary surgery, will be both oral and written, and be held at the close of the winter session. They will be conducted by the University examiners on the respective subjects of examination, assisted by an examiner appointed by the Council of the Veterinary College of Edinburgh, and an examiner appointed by the Royal College of Veterinary Surgeons.

For the degree of veterinary surgery, the fee will be 10*l.* 10*s.*

But no University has been so serviceable in developing popular science or technical instruction as the Andersonian Institution at Glasgow, and the Watt Institute at Edinburgh.

NATURAL SCIENCE AND MODERN LANGUAGES IN SECONDARY SCHOOLS.

Among the significant movements of the year (1870) are the following extracts from a communication, by the Chairman of the Endowed Schools Commission, to the chief authority in all the principal Universities in Great Britain:—

That the course of study insisted on by the Universities must to a great extent govern the course adopted in the higher schools, is a proposition which will probably be accepted without argument. Though it may be the case that only a very few scholars are intended for the University, those few are the most prominent, stay the longest, and give a bias to the whole education of the place; and numbers of schools are thus forced or irresistibly attracted into a course which is not that best suited to the bulk of those for whom they are designed.

The practical result is, that the study of the Greek and Latin Classics becomes the highest aim of all great schools; an end to which the whole system is adapted, and which has hitherto overshadowed and dwarfed all efforts in other directions.

We do not propose to discuss here the question whether the Greek and Latin languages are the finest and most efficient organs of mental training. We merely rest upon the fact that many competent judges say that they are not; and that very large numbers of the middle classes in England view with suspicion, if not with aversion, the predominance of these subjects in the ordinary school course. This suspicion or aversion may not always be very intelligent, or founded on clearly assignable reasons; but it is instinctive, it is widely spread, it tallies with the undoubtedly intelligent judgments above referred to, and the fact of its existence is a reason for endeavoring to establish other alternative and additional modes of training, more acceptable to at least a large number of people. The state of opinion is such as to leave no room for doubt that these newer methods will be followed by many, who, if they can not find sufficient aid in this country, will have recourse, as some are now doing, to Germany and other foreign countries.

We start, then, from the fact that there exists a strong demand for more training by other than classical studies, and that the subjects generally suggested are Mathematics, Modern Languages, and Natural Science.

Mathematics have a recognized footing in the country; they have long been the leading study at Cambridge, and are a fully-established study at Oxford; and we do not think it necessary to dwell upon them.

The advantage of Modern Languages for practical use is obvious enough. And there are many who think they may be made an excellent organ of mental training. On this head we refer to the Schools Inquiry Report, pp. 25-28.

The evidence in favor of Natural Science is stronger still. We would refer to the same Report, p. 34, and to a Report made in the year 1867 to the British Association, which will be found published by the Schools Inquiry Commission in vol. ii., p. 219. It is clear that amongst highly educated men who have studied the subject deeply, there are some who think that, both for the practical nature of the knowledge it conveys, and for its severe training of the whole range of mental faculties, Natural Science has a higher claim than any other subject to be the chief instrument of education.

It appears to us, as it appeared to the Schools Inquiry Commissioners (Report, p. 87), that a demand made by so many parents, and supported by strong proof of its reasonableness, ought to be ungrudgingly conceded. The question for us is not so much whether the demand should be met, as what measures are required to give it practical effect. It is not enough to establish schools with what may be called a modern curriculum, but intended only for those scholars who terminate their school career at fourteen or sixteen years of age; for the time does not allow of a fair trial of the new methods, nor would such schools meet the want of the more intelligent part of the parents who make the demand. Nor is it enough to add the modern studies to the ordinary classical curriculum in higher schools, for that involves the dangerous risk of distracting the minds of the pupils, and dismissing them with a smattering instead of a

solid hold of knowledge, and of encouraging habits of skimming over a variety of surfaces instead of grappling closely with difficulties. Nor can the ancient and modern studies be wisely put as rival objects of pursuit in the same school, with the almost inevitable result of the supremacy of the one and the decay of the other. For, as experience has shown, the one to decay is that which has not got on its side long usage, or established reputation, or the associations of old institutions, or the sympathies of the great body of teachers, or the substantial attractions of endowments.

We are convinced that, in order to give a fair trial and full play to the study of Modern Languages and Natural Science, it is necessary to establish some schools of the first grade (*i. e.* schools retaining their scholars to the age of eighteen or nineteen), in which these subjects should be the staple of the course, and to that end the time and importance assigned to Classics be much diminished.

Nor can we doubt which part of the ordinary curriculum should be sacrificed for this purpose. Something not inconsiderable may, no doubt, be done by dropping some of the elegancies of Latin scholarship, and teaching that language more with a view to a knowledge of its structure and the capacity of understanding its literature than with a view to composition. But that Latin should in the main be retained, we do not question. If Modern Languages are to be studied, Latin lies at the base of Italian, Spanish, and French, and enters largely into English. Its practical use in life is appreciable; until within the last four centuries, Latin was the language in which the largest part of the business of Western Europe was recorded, and almost the whole of its literature was written. No ecclesiastic, lawyer, antiquarian, or physician can dispense with all knowledge of it. Greek has none of these uses, while yet it takes more time to learn, is forgotten sooner, and is the object of greater suspicion and dislike to parents. It belongs to the classical region, and to that alone; and from its difficulty, and also its attractiveness, must be expected to receive a large share of the student's time and attention, if it is to answer any sufficient purpose. No school can be other than a classical school in which Greek is effectively studied.

Influenced by these considerations, we have determined to venture on the experiment of employing some of the Educational Endowments best adapted for the purpose, in establishing, among other schools of the first grade, some which may by way of distinction be called *Modern*; that is, schools in which Greek shall be excluded in order to provide adequate test and encouragement for the study of Modern Languages and Natural Science.

When, however, we propose to establish such schools, we are met by the objection that the Universities will be closed to the pupils, however competent, unless they will spend money and time in acquiring that quantum of Greek which is exacted from all who go there. The quantum itself is not great, and might doubtless be acquired perfunctorily, and, according to the common phrase, by 'cram'; but in that case it would be of little value for the purpose of mental training, and the exertion spent in acquiring it would be almost pure waste in a life which may have little to spare.

The broad result is that, as long as Greek is made a *sine quâ non* at the Universities, those schools of the new type which it is proposed to establish will labor under the serious disadvantage of being cut off from direct connection with the Universities, through a want of agreement in their course of studies with University requirements, while, if the schools flourish, the Universities will in some degree lose their control over the higher culture of the nation.

We trust that we shall not be misunderstood as desiring to intrude speculations of our own concerning the internal arrangements of the Universities. But we are confident in the belief that, for our own work, we are bound to attempt to establish such schools as we have indicated; and it is with reference to them that we venture to suggest to the Universities to modify those arrangements; so that, for instance, a first-rate man of science, who knows no Greek, shall not (at least in theory and intent) be at any greater disadvantage than a first-rate Greek scholar who knows no science. How this is to be done, we do not pretend to suggest; but if once the object be considered desirable, we presume that no great practical difficulty will be felt in giving effect to it by those who are familiar with the details of University organization.

MILITARY AND NAVAL SCHOOLS.

NAUTICAL EDUCATION.

THE ROYAL NAVAL ACADEMY,* for educating cadets for the English naval service, was instituted in the Portsmouth Dock-yard in 1729. In 1816 a Central School of Mathematics and Naval Architecture was added to the establishment. In 1839 the institution was reorganized, and Professorships of Steam-machinery and Chemistry were established, and special courses were instituted for officers and mates, and facilities for observation and practice in the construction of engines and uses of steam were provided in the Woolwich Dock-yards. In 1844 the School of Naval Architecture was reorganized with a view of conforming the course of instruction to that of the French *École d'Application du Génie Maritime* at Paris.

The course at Portsmouth embraced algebra, geometry by projections, and the construction of solid bodies and their sections from these projections, plane coördinate geometry, differential and integral calculus, mechanics with strength of materials and their application to the steam-engine and naval constructions. The fatal defects were, first, the want of suitable preparation on the part of the applicants, and second, the uncertainty of government employment, and regular distinction and promotion in the service as engineers, on the completion of the course. Practically the English school fell far behind the French model. But there were broad differences in the preparatory knowledge brought by the students of the two schools to the special work required by the naval service, and in their relations to the service afterwards. In the French School, the students had already gone through with honors, the severe mathematical training of the Polytechnic School, and were prepared to enter at once on the application of these sciences to naval architecture, and the construction and uses of steam machinery in vessels of war, and were sure of future employment and promotion. In

* For account of Naval and Navigation Schools in England, see *American Journal of Education*, vol. xiv. 637-640; xv. 65-80. The subject will be treated more in detail in MILITARY AND NAVAL SCHOOLS—England.

the English School, the students in many cases came direct from the dock-yard and the deck, without even a good elementary education, were employed during the day in the ordinary work of their positions, and only gave their evenings to scientific studies. The results of this system were not satisfactory, and the School was suspended; but under the lead of a few practical architects and engineers the system of instruction was revised, and in 1862 a new institution was established at South Kensington, and in connection with the Industrial Museum, a collection of models, drawings, and other appliances of illustration and practice in every department of instruction given in the School was begun.

Theoretical and practical instruction in naval gunnery is given in the Royal Naval College at Portsmouth, and a cadet establishment on board of the man-of-war *Excellent*.

NAVIGATION SCHOOLS.

In 1853 the English Government constituted the Department of Science and Art, to extend a system of encouragement to local institutions of Practical Science, similar to that commenced a few years before in the Department of Practical Art, the two Departments being united in the course of the same year, and the united Department being administered at first by the Board of Trade, and in 1856, by the Education Department. To this Department of Science and Art, was assigned in 1853 the general management of a class of schools which had been instituted or aided by the Mercantile Marine Department of the Board of Trade, for the benefit of the navigation interests of the country. Instruction in navigation was given in the seaports by private teachers, without system, and to a very small number of those who should be well grounded in the principles of the art before being entrusted with the responsibilities of command, involving the lives and property of others. To introduce system, to give permanent employment to a larger number of well-qualified teachers of navigation, to elevate and improve the attainments and character of British masters, mates and seamen, and indirectly but largely increase the supply for the Royal Navy in time of war, the Government had determined to encourage local effort in establishing Nautical Schools. With this view the Marine Department of the Board of Trade had established two schools prior to 1853, one in London, and the other in Liverpool; and an arrangement had been made with the Admiralty, by which it was believed five or six pupil-teachers, who had completed their term of instruction at the Royal Naval School at Greenwich, would be able to attend the scientific courses in the Metropolitan Schools of Science and Art, and be instructed in those sciences which would better fit them to become masters of schools of navigation in the

seaport towns. In 1854, the Trinity House* of Hull reorganized its old school of navigation, after the plan of the Royal Naval School at Greenwich, with two divisions, the lower for a class of boys who need elementary instruction, and the upper, for boys in the technical studies of a seafaring life. With the latter was opened an evening school for adult seamen. Similar schools, with a junior or lower division to revise and complete the general and preparatory studies, and a senior or upper school for special scientific and practical instruction in navigation and seamanship, were established at Yarmouth, Leith, Glasgow, Aberdeen, Belfast, Dublin, Waterford, and other ports, fifteen in all up to 1862, giving instruction to over 3,000 persons, and all of them enlisting local co-operation and individual payment with governmental aid. As an example of this class of schools we cite a brief description of one of the earliest established, from a Report of the Inspector, Edward Hughes, one of the masters of the Greenwich Hospital Schools.

London Navigation School.

The London Navigation School is held on the upper floor of the Sailors' Home Institution, situated in Well Street, London Dock, and consists of two separate apartments, occupied by the Upper and Lower sections.

The upper section is for the instruction of masters and mates of the merchant service in the following subjects, viz.:

Sextant Observing. Chart Drawing. Geometry. Algebra. Trigonometry. The Sailings. Use of the Nautical Almanac and Mathematical Tables. Principle and Construction of Chronometers. Methods of determining the Latitude and Longitude. Nautical Surveying. Compasses and Magnetism of Ships. Theory of Winds, Tides, and Currents. Methods of taking and recording Meteorological Observations. Principle and Construction of the Steam Engine as applied to the Paddle Wheel and Screw Propeller.

The Lower section is for the education of seamen and apprentices. The course embraces the following subjects:—

Reading. Writing. Dictation and Letter Writing. Arithmetic. Geography. The Sailings. Sextant Observing. Method of Keeping Ships' Books.

The hours of attendance are from 9 to 12 a. m., 2 to 4 p. m., and 6 to 9 p. m. on the first five days of the working week, and from 9 to 12 a. m. on Saturdays.

The fees are six shillings per week for masters and mates, sixpence for seamen, and apprentices are admitted free.

The instruction of both sections is conducted by teachers who have been educated and trained in the Greenwich Hospital Schools, and who hold certificates of competency for teaching Navigation and Nautical Astronomy, from Mr. Ridle, the Head Master of the Nautical School.

As regards the students who at present attend the school, it is manifest that the masters and mates taught in the senior section come for the express purpose of learning to solve certain problems in Navigation and Nautical Astronomy, required for passing the examination of the Local Marine Board, and they are unwilling to devote any portion of their time to the other subjects that enter into the course of instruction. These, though essential to the education of every master mariner, are unfortunately not at present required of a candidate to pass an examination which proclaims him competent to take command of a vessel.

The lower section is composed of seamen and apprentices, who are for the most part employed during the day at their ships in the docks, and have acquired

*The Trinity Board of Hull was established in 1537, in imitation of Trinity House, London, incorporated by Henry VIII in 1515, (but existing long before,) for the promotion of commerce and navigation, licensing pilots, erecting beacons and lighthouses, &c. Both were probably in imitation of Charles V. who established at Seville, in Spain, at the *Casa de Contratacion*, lectures on navigation, and an examination of persons to act as pilots and mariners

the rudiments of an English education before entering the school. They attend during their short stay in port from 6 to 9 in the evenings, and their chief object seems to be to acquire a knowledge of the sailings and the methods of keeping the books of a ship.

Both sections are taught the use of nautical instruments, and for this important purpose the Board of Trade has granted a liberal supply of requisites to carry out an efficient system of instruction, as will be seen by the list appended to this Report.

Those students who are sufficiently educated are accustomed to work out their own observations. None of them have been allowed to leave the school without receiving as great an amount as was possible of general information, in addition to the special instruction in the subjects for which they attended. Lectures have been delivered in the evenings upon the Steam Engine, Electricity, and Magnetism, with other branches of Natural Philosophy; and the Physical Geography of the Ocean has received particular attention.

The following statistics are given in the Report of Capt. Ryder, of the Royal Navy, in 1858.

The officers of the committee of management are:—

Chairman, Admiral Sir H. Hope.

Secretary, Captain George Pierce, R. N.

Head-Master, John Bowing, 1 certificate.

The total number receiving instruction in navigation in or through the agency of the school during 1858 has been 149, showing a total increase of 25 since last year. The total fees have been 46*l.* 15*s.* 6*d.*

The entire number of adults and boys who have at any time paid fees during the year are, masters, 3; chief mates, 17; only mates, 2; second mates, 37; seamen, 62; apprentices, 28; total number of students, 149.

The following is the rate of fees paid by adults and boys per week:—In the day classes—Masters studying for extra certificates, 6*s.*; chief mates studying for master, 6*s.*; only mates studying for chief mates, 6*s.*; second mates studying for chief mates, 6*s.*; seamen studying for only mates, 6*s.*; for second mates, 6*s.*; apprentices studying navigation, 6*s.*; those not studying navigation, 1*s.*; seamen not studying navigation, 1*s.*; boys learning navigation, 6*d.*; boys not learning navigation, 6*d.* In the evening classes—Adults learning navigation, 3*s.*; not learning navigation, 1*s.*; boys learning navigation, 3*s.*; not learning navigation, 6*d.*

The average attendance at the classes has been:—

Day classes, morning, 7; afternoon, 6.

Evening classes, 6.

Grand total of fees, 46*l.* 15*s.* 6*d.*

The amount of aid afforded to the school by the Department has been 48*l.* 16*s.* 4*d.*, which sum includes the payments for the master's certificate and other allowances, the payments to pupil-teacher, the cost of medals, &c.

School Ships.

There is another class of nautical schools for destitute and endangered boys, which are aided by the government through the Ragged School Society, and are kept on board of ships, the practical seamanship of which might advantageously be incorporated into the navigation schools. The expense of these ships per day is thus given by Capt. Ryder, in his Report on Navigation Schools in 1858.

I have collected some statistics showing the expense of school ships. The Akbar, a frigate at Liverpool, is a reformatory, and has about a 100 boys. The Venus, also a frigate, is in charge of the Marine Society, and anchored near Woolwich; she is a school ship for destitute lads, and has about 140 boys. In the Akbar, supported partly by local contributions and partly by the Government grant of one shilling a day for each boy, the expense of the establishment is probably reduced to as low a scale as possible. The Marine Society is a

corporation which can afford to be more liberal in its arrangements. The Akbar was fitted out at an expense of 1,800*l.* but about 1,000*l.* is considered to be sufficient for a fit out, if the hull is in good repair. The Marine Society's ships are always fitted out by the Admiralty without charge. The Akbar costs about 250*l.* a year for repairs, &c.

Estimate of Annual Expense per Boy, deduced from Report.

	Akbar.		Venus.	
	£	s.	£	s.
Food,	£10	0	£13	10
Clothes,	4	0	6	0
Management, &c.	10	0	10	10
	<hr/> 24 0 <hr/>		<hr/> 30 0 <hr/>	

Outline of Aims and Management of Navigation Schools.

In 1858, Captain Alfred P. Ryder, of the Royal Navy, was appointed to inspect the Navigation Schools connected with the Department of Science and Art, and report on their condition and future management. The statements and suggestions of this report harmonize so fully with the conclusions which we have reached respecting the need and mode of establishing and managing this class of schools in our own country, that we can not better express our own views than by making liberal extracts.

The Government is very anxious to raise the tone of the Commercial Marine for the following reasons:—

(a.) Because the Commercial Marine supplies even in time of peace a considerable number of men to the Royal Navy, and because in time of war we should have to rely upon it almost entirely to enable us to man our ships when our reserves were exhausted, which would soon be the case in a naval war.

(b.) Because on the efficiency of our commercial marine depends to a great extent our position as a commercial country, and on our position as the greatest commercial country rests our supremacy among European nations.

(c.) Because to the commercial marine is entrusted every year an immense amount of valuable property. Want of skill, intelligence, and readiness of resource largely increases the yearly loss of this property.

(d.) Because to the commercial marine every year are entrusted the lives of a large and increasing number of Her Majesty's subjects. Want of skill, intelligence, and readiness of resource largely increase the yearly loss of life at sea.

(e.) Because the commercial marine consists of more than 200,000 persons, and is, therefore, an important portion of the nation, considering it numerically.

(f.) Because the commercial marine represents England, its religion, laws, customs, and habits, in every foreign country, and it is desirable that our representatives should cease to exhibit (as is now frequently the case), the worst side of the national character. Large numbers of the sailors in our commercial marine are at present neither good men nor good sailors, but are disorderly, addicted to drink, inefficient at sea and all but useless in harbor. Many of them who reach the rank of mate and master compare disadvantageously in general knowledge with the mates and masters of foreign vessels. There are of course numerous brilliant exceptions. They are to be found chiefly in the service of the large ship-owners. In knowledge of seamanship English masters and mates need not fear a comparison with those of any other nation.

The Government, anxious to raise the tone of the Commercial Marine, has endeavored to purify the stream at its source, by the creation or support of Navigation Schools, in order that as soon as possible, by the introduction of well educated lads, its character may be elevated and improved. The Navigation Schools referred to are supported by fees, by local subscriptions, and by aid from the Department of Science and Art. Their object is to offer instruction in

- * the scientific branches of an Education specially adapted to the Nautical Profession.

In commencing an investigation into the present position and prospects of the Navigation schools, it is evidently advisable to ascertain the number of vacancies that occur annually in the commercial marine; these vacancies are occasioned by death, desertion, and change of profession. It is much to be desired that these vacancies should all be filled by well educated English, Scotch, and Irish lads, for in time of war we could only recruit from the Commercial Marine those sailors who are British subjects.*

Capt. Ryder estimates the number of lads required to supply the annual vacancies by death in the British Commercial Marine at over 5,000, and by desertion and change of profession, by at least 1,000 more, or a total of over 6,000; and that schools for seamen and officers should be sufficient to give an annual supply of at least that number, and so accommodate 18,000 students. According to the Report of the Registrar General of Seamen, there were bound and registered at the several ports of the United Kingdom, in the year 1856, 7,410 apprentices. The 176,887 men (not including masters,) employed in the Home and Foreign Trade, were classified as follows: 21,204 mates, 13,232 petty officers, 83,682 seamen, 23,974 apprentices and boys, 12,640 other persons, 1,612 engineers, 4,896 firemen. Of this number 14,875 were foreigners, and 7,712 lascars. During the year 1856, examinations were passed for extra masters, 22; for ordinary masters, 1,223; for first mates, 689; for only mates, 12,223; for second mates, 940—a total of 4,097. Capt. Ryder calculates that the total number required every year to fill up the vacancies and meet the demands of an expanding commerce as follows:

Of those who leave the service,	6,690
Of those who are drowned,	1,800
Of those who die of disease,	2,660
The average annual increase by expansion of commerce,	3,365

Total supply required,	14,015
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Capt. Ryder remarks that the system of nautical education should be broad enough and attractive enough to bring in all the boys of all classes who wish to go to sea, or may be required to meet the demands of the national and commercial marine. The education given should make athletic, intelligent, handy seamen, and impart such an amount of scientific knowledge of navigation and seamanship as will qualify a due proportion for a lower grade of officers.

The first point to be aimed at would apparently be the establishment of an adequate number of schools, so as to offer scientific instruction on the lowest terms to a sufficient number of boys, to supply the demand for educated young men to fill the vacancies in the ranks of masters and mates. Their knowledge of seamanship must of course be gained before the mast.

A commercial navy, fed by a supply of lads that had for three years attended

* According to the Registrar General's Report for 1863, there were 13,200 Foreigners serving in the Mercantile Marine in 1864, natives of the following countries:—Americans, (U. S.), 3,888; Austrians, 532; Belgians, 196; Danes, 423; Germans, 319; Greeks, 76; Hollanders, 1,631; Italians, 110; Norwegians, 570; Portuguese, 564; Russians, 44; Prussians, 563; Spaniards, 388; Swedes, 1,512; French, 479; Various, viz., South Americans, Chinese, &c., &c., 2,499; total, 13,200.

the classes at a Navigation school would challenge comparison for general knowledge and information with any profession in England, and would soon cease to be the last resort of those idle, troublesome fellows, expelled from the agricultural class and the various trades, who are too old, too ignorant, or too profligate ever to make even indifferent sailors.

Having stated what appears to me to be the ground that may be beneficially covered by a network of navigation schools, I will proceed to state what, in my opinion, are the means by which a Navigation School may be rendered most attractive and efficient.

I. *A Navigation School assisted by the Government should offer sound Instruction specially adapted to the Nautical Profession.*

Although at first sight the number of subjects named hereafter may appear large, and the education of too high an order, these objections will vanish when it is remembered that lads are not acceptable on board merchant ships until they are 15-16, because they are of little use, and give trouble; and yet, as has been already stated, if not attracted to the Navigation schools at the age of 12-13, and induced to remain in attendance on the classes until they are 15-16, they will be drawn into some other profession.

The course of instruction which is adopted must necessarily therefore be sufficiently comprehensive to extend over *three* years, and at the same time continue to the last to be specially adapted to conduce towards the boy's success in his profession.

The subjects which appear to be suitable for boys destined for the nautical profession and retained under instruction from 12-13 to 15-16 are as follows:—

- * (1.) Reading and writing from dictation.
- * (2.) First four rules of arithmetic.
- * (3.) Grammar.
- (4.) A complete course of arithmetic.
- (5.) Algebra to quadratics, with application.
- (6.) Geometry, Books of Euclid, I. II. III., and a few propositions in Book IV.
- (7.) Trigonometry, plane and spherical.
- (8.) Navigation.
- (9.) Nautical astronomy, including lunar double alt. and Sumner's method.
- (10.) Practical use of the instruments used at sea.
- (11.) Geography, descriptive, } especially as regards products, climates, &c.
- (12.) Geography, physical, }
- (13.) Chart drawing; surveying.
- (14.) Free-hand drawing.
- * (15.) History, particularly Scripture History and English History.
- * (16.) Letter writing; book-keeping.
- (17.) Mechanics and steam-engine.
- (18.) Magnetism and electricity in relation to ships.
- (19.) Laws of storms and tides.
- (20.) Knowledge of the code of signals.
- (21.) Mercantile laws and usages, as far as is necessary for the master of a merchant ship.
- (22.) Gymnastics.

The above subjects are taught in the Navigation School at Hull.

II. *A Navigation School should provide a good supply of apparatus, viz., instruments, books, maps, slates, &c. without any charge to the pupils.*

In Ireland, where a class of Navigation Schools has been established as part of the system of National Education, a very liberal supply of sextants, books, maps, &c., is given to each school by the Board of Education.

III. *A Navigation School aided by Government should offer valuable prizes in the shape of exhibitions, instruments, books, &c.*

The great difficulty we have to contend with is the reluctance on the part of some parents, the inability on the part of others, to maintain their children during the three years' course.

* The boys are expected to be proficient in these subjects before entry, and they need only be taken up in the way of review.

Exhibitions and prize-schemes should therefore be established on the most liberal footing.

Prizes had been awarded by the Department in only two or three instances before my tour of visits.

(a.) I beg to suggest that prizes be awarded, when deserved, at all the schools every half year.

The prizes to consist of sextants, watches, instruments, books, &c. The future prizes to be placed at the commencement of the half-year under the charge of the local committee, to be exposed in the schoolroom in a case with a glass lid or cover. (The half-yearly value of the prizes to be about 15*l.*); the prizes to be fairly and openly competed for.

A very limited number of sextants should be given away, not more than one each half-year among all the schools. The prizes not to be awarded except on the most satisfactory proof of the lad's sufficient proficiency.

(b.) I beg to suggest that exhibitions be established on the following scale, viz., at the rate of twelve for a school giving instruction to 100 boys, or one to every eight boys, and be awarded at all the schools every half-year.

The boys after the examination to be divided in the following manner:—

The First Division to consist of all the boys who had attended the Classes for a period under 6 months.

The Second Division to consist of all the boys who had attended the Classes for 6, and under 12 months.

The Third Division to consist of all the boys who had attended the Classes for 12, and under 18 months.

The Fourth Division to consist of all the boys who had attended the Classes for 18, and under 24 months.

The Fifth Division to consist of all the boys who had attended the Classes for 24, and under 30 months.

The Sixth Division to consist of all the boys who had attended the Classes for 30, and under 36 months.

Exhibitions at the rate of one in eight boys to be given to the most successful boys in each group.

The exhibitions for the 1st and 2nd Divisions to consist of remission of fee and a donation of 6*d.* a week for ensuing half-year.

The exhibitions for the 3rd and 4th Divisions to consist of remission of fee, and a donation of 1*s.* a week for ensuing half-year.

The exhibitions for the 5th and 6th Divisions to consist of remission of fee, and a donation of 2*s.* a week for ensuing half-year.

This part of my proposal is elastic, the value of the exhibitions can be increased if the principle is approved of, and the number may be extended even to offering an exhibition to every boy attaining a certain degree of proficiency in the studies of the school.

The chief merits of this plan are (1.) that as all the exhibitions are thrown open for competition every half-year, the spirit of emulation is constantly kept alive; it is notorious that the attainment of an exhibition or scholarship which will be held throughout a student's career is often the prelude to idleness. (2.) That exhibitions are placed within the reach of the youngest boys.

The examination to decide on the exhibitions and prizes should take place at the end of the half-year. The questions to be sent from the Department, and the answers to be sealed up in the presence of the boys, and sent to the Department on the evening of the examination day. The prizes and exhibitions should be awarded at the commencement of the next half-year. As the examination should not, if possible, extend over more than one day, the Department might make a selection from among the subjects taught. As the inspector can not be present, one or more of the local committee should remain in the school during each examination.

The result of each examination should be allowed to be published in the local papers; competition will then be created among the various schools at the seaport, who will view with great interest the position of their boys on the examination list.

| Capt. Ryder suggests (1.) that each boy who holds an exhibition or

gains prizes, have the fact engrossed on a *vallum certificate*, and receive a medal or badge. (2.) That all graduates of the school who bring a good character from their captain or shipowner, for one year after leaving the school, receive one pound from the funds of the school. (3.) That shipowners and the Admiralty be induced to look first to the Navigation schools for their apprentices, and that they open to competition among the prize boys of the schools, any choice places in their gift. (4.) That officers and masters of ships, and public men interested in nautical matters be invited to visit the schools.

IV. *A Navigation School should provide an ample Educational Staff, whose income should be sufficient, and a certain portion of it fixed, and whose energies should be mainly directed to the Education of the Boys.*

The educational staff, as a general rule, is very insufficient, owing to a school for adults having been generally established in connexion with the school for boys.* This course was adopted chiefly for economical reasons, it being intended that the large fees from the adult class should pay the greater proportion of the expense of the school; but it has resulted in the boys' school being most seriously injured, as follows, without any compensating advantages.

The boys who pay fees, from 6d. to 1s. a week, are constantly and unavoidably neglected by the head master, whose interest it is to attend to the adults who pay from 5s. to 7s. a week; and even if superior to that motive, the head master can not leave the adults for more than a few minutes at a time, because, and not unnaturally, they insist on his remaining with them.

A peculiarity in the mode of paying masters of Navigation Schools is in increasing his compensation from all other sources by the payment by the Department of an amount represented by the certificate he may hold of his success in passing examination in certain group of subjects. The scheme is as follows:

Group I. Mathematics necessary to the study of navigation,	£5
Group II. General navigation and nautical astronomy,	15
Group III. Adjustment and skillful handling of instruments,	5
Group IV. Physical geography,	10
Group V. Physics, mechanics, marine steam engine,	10
Group VI. Chemistry,	5
Group VII. Natural history,	5
Group VIII. Chart, freehand, and mechanical drawing,	5

£50

This group payment is a well devised scheme to induce masters to improve themselves, and is applicable to teachers of every grade, and if rightly applied, will operate as a constant stimulus to professional improvement. But in the case of this class of schools, where there are pupils on a varying scale of direct payment to the teacher, the teacher will be tempted to give his particular attention to the pupils who pay best. This can be counteracted by making the masters' payment depend on the proficiency of the scholars.

To obtain and keep the services of the zealous, intelligent, and very superior men who alone are fit to take charge of navigation schools, I believe a superannuation allowance would be at the same time the greatest and most economical inducement.

I beg to suggest that at 60 years of age a navigation master be allowed to

* The school at Hull is the only navigation school at which no adults are received.

retire with his group money as an allowance. This would be a great inducement to remain in connection with the Department, and to pass in as many groups as possible.

The direct inducement which I propose to give to the educational staff to bring their schools up to the highest state of efficiency is a payment in money, and I have been induced to propose this from the sense of the paramount advantage derived in any undertaking from making it the direct pecuniary interest of agents to act up to their instructions.

I propose that every head master, every assistant master and every pupil-teacher employed in teaching the boys shall receive a sum of money in addition to his fixed salary and his group money to depend on and vary with the success of the school at the half-yearly examinations. The mode by which I propose to estimate the amount of this payment will be detailed further on, when I speak of inspections.

It consists of a sliding scale of payment, so contrived that it is the direct pecuniary interest of the head master to bring all his boys up to the highest state of proficiency, and also the direct pecuniary interest of all the educational staff to refrain from forcing on the clever boys, if by so doing they neglect the duller boys, and also to refrain from drawing the boys into the upper and more showy subjects to the neglect of the lower, more elementary, but more important subjects, errors commonly and but too justly ascribed to schoolmasters in their endeavors to give to their schools the appearance of high efficiency.

I am aware that the sliding scale of payment which I propose has the demerit of novelty.

The Committee of Council, fully alive to the advantage of a sliding scale, have provided that, in the primary schools, the master's pay shall depend on and vary with the school pence and the capitation grant (a grant which is made to depend upon the attendance of the children,) in the art schools it is made to depend on and vary with the number of prizes won by the students.

The disadvantage of the former plan is that the sliding scale, being made to depend upon mere numerical attendance, both particular proficiency and general proficiency are ignored.

The disadvantage of the latter is that it is made the master's direct pecuniary interest to force on the clever boys to the neglect of the dull boys, while general proficiency and numerical attendance are ignored.

There are doubtless good reasons why these very different plans should have been adopted in primary and art schools.

In the scheme of varying payment which I propose for navigation schools, both the general proficiency of the school and the numerical attendance of the scholars are made the measures of the masters' emoluments, while the proficiency of individual boys is fostered by prizes and exhibitions.

V. The Masters of Navigation Schools should display great intelligence and aptitude for teaching, should be intimately acquainted with the best methods of instruction, and be zealous in the performance of their duties.

As a general rule I have found the masters intelligent and apt to teach. The majority of them have enjoyed the privilege of an education at Greenwich under Mr. Riddle.

It is important that the masters should be drawn from some normal school; Greenwich school appears admirably adapted for such purpose. To draw a large supply of masters from that school, and retain their services, the position of the masters in a pecuniary point of view must in my opinion be improved. But if this is done an engagement should be entered into to remain as a navigation schoolmaster for a certain time, and after that, not to leave without at least two months' warning.

The position of assistants should be open to all persons whose credentials previously received, as to good character, proficiency in all the subjects taught in this class of schools, and required for the place, are satisfactory. The examination should be public, and the results published. The vacancies among the head masters should be open to competition among the assistant masters.

VII. The Navigation Schools should be judiciously situated, have large airy rooms, a good playground, gymnastic poles, and a lending library.

Exercise at gymnastics is most beneficial to the boys' health, and confirms them in their choice of the naval profession. The lads when they go to sea are much more useful aloft if they have acquired the agility and daring which can alone be gained by gymnastic exercises.

One of the causes of the rapid deterioration in the physique of our sailors is the diminution of work aloft consequent on the introduction of steam.

VIII. The Fees in a Navigation School should be carefully adjusted.

A carefully adjusted scheme of fees from 1d. to 1s. per week will not exclude by their amount any poor boys whom we might wish to admit, or to repel by their insignificance those parents who would attach no value to that which cost them little.

The larger portion of the fees, after deducting a certain fixed sum, or a certain definite proportion of them for local expenses, will stand in the school accounts to the credit of the local committee, and will be expended from time to time, with the consent of the Department, in paying the masters' salaries, the boys' exhibition money, &c.

In some seaports, where there is a pertinacious disinclination on the part of the parents of the boys to their going to sea, I have suggested to the committee the undertaking to return all or a portion of the school fees of any boy who has passed above a certain mark, on proof being received that the boy has sailed. This would in many cases act both on parent and child as a great inducement to the boy to go to sea.

IX. Navigation Schools should be periodically inspected and reported on.

Inspection to be really valuable should be thorough. Now the subjects in which it is proposed that the boys shall be taught at the Navigation School are very numerous, and none of them should, if possible, be allowed to escape the notice of the inspector and the test of examination.

I propose that there shall be two examinations every half-year, (1) the general examination, to measure the progress and proficiency of the navigation classes, and the payment to be made to the educational staff; (2) the special competitive examination for prizes and exhibitions. The first will be held in the course of the half-year, in the presence of the inspector and master, the answers, however, to be looked over and valued in London. The second will be held at the close of the half-year, in the presence of the master and of one or more of the local committee. It will be entirely a written examination, the questions to be sent from the Department. To prevent any suspicion of unfair treatment, the examination books should, after each examination, be sealed up at the close of the day, in the presence of the boys, and sent to London. The prizes and prize studentships will be awarded when the school meets again, at the commencement of the next half-year. The answers will be valued in London, by a person appointed for that special purpose. The practice I have adopted is to give full numbers for an accurate answer, half numbers for an answer which, though inaccurate, shows intelligence.

The inspector who conducts the general examination should have with him various papers of questions of equal value on each subject, so as to diminish the possibility of information as to the questions set at the examination being communicated from one school to the other. The masters have a direct pecuniary interest in preventing any information being sent to the other schools.

I suggest that the general examination, to ascertain the amount of examination money, be conducted in the following manner:

The school to be arranged previous to the arrival of the inspector, in five classes, each class separated from the other as far as the arrangements of the school will admit, and the five classes to be so composed as to be about equal, both in average and collective intelligence. No difficulty is experienced by the masters in doing this.

The number won by the boys in a class in a particular subject will be added together and divided by the number of boys in the class; the result will be the mean number for that subject for that class, and the classes being equal, that number will be a measure of the proficiency of the school in that subject. The

number of boys in the school multiplied by the sum of the mean numbers will be the number which will determine the sum of money to be apportioned to that school, and divided among the educational staff.

I propose that a sum of money, at the discretion of the Department, be divided* once a year among the schools, in the ratio of the numbers obtained as above, and that notice be given to them to that effect at the commencement of each year, naming the total sum. I propose that the sum won by the school should be divided among the educational staff in the following proportions:—

Head Master 5 shares, but total not to exceed	£30
Assistant Masters, each 2 shares, but total not to exceed	12
Pupil-Teachers, each 1 share, but total not to exceed	6

As every progressive step made by the duller boy who attends the classes tells on the gross number, and through it on the pecuniary gain of the whole staff, the staff will have no temptation to neglect, but on the contrary, every inducement to push on the dull boys, and as proficiency in the lower subjects counts as much as proficiency in the highest the common fault of neglecting the low subjects would evidently diminish very much the profits of the staff, and will therefore be prevented.

I consider this sliding scale would be preferable to paying the master a certain sum for every prize won in the school, which is a direct temptation and inducement to him to select from time to time the most promising boys, and put them under pressure to make prize boys of them, neglecting the dull boys of the same standing who can not on that system of reward be productive of any benefit. The collateral advantages of this system.

(1.) It becomes the direct personal interest of the staff to retain the boys as long as possible, in order that at each examination, there shall be as many boys as possible well advanced in all the subjects.

(2.) That it becomes their direct personal interest, to select from among the boys presenting themselves for entry, those that are most advanced in the elementary subjects, so that their backwardness may diminish the mean numbers as little as possible.

(3.) That it becomes their direct personal interest to work the school with as few masters as possible, as thereby their individual gains are larger.

(4.) Competition is created among the Navigation schools and their educational staffs. The result of each examination should be allowed to be published in the local papers, and the results of the examinations at all the Navigation schools should be made known at each school.

(5.) The inspector and the Department can see at a glance whether any Navigation school has neglected any subject. The masters could not evade the rigor of this test by any artifice.

(6.) The boys will be induced generally to enter into the spirit of the competition, which will have the best effect. A few only can win the prizes and exhibitions, but all can contribute by their exertions to the comparative success of their school.

(7.) The local committee and the neighborhood would enter into the spirit of the struggle.

X. *A distinctive Dress or Badge is calculated to have a very good effect on the Navigation Schools.*

The Trinity Board at Hull gives to 80 boys in the Navigation school a neat uniform (blue jacket, blue and white trousers, and blue cap.) This has a capital effect on the boys, gives them an esprit d'école, and acts as a restraint on their conduct outside the schools.

XI. *In Navigation Schools great pains should be taken to ensure punctual attendance on the part of the boys.*

I beg to suggest that the best form of registers be provided, and that it be made imperative that the register be strictly kept in all the schools, and that the following practice be universal instead of partial, viz., that any boy arriving late is expected to produce a written authority from the master of his school or his parents for his absence. Prizes for good attendance have been found very useful in primary schools. I beg to suggest one prize of 10s., three of 5s., and five of 1s. every half-year, or 3l. a year in a school of 100 boys.

* I prefer this to any other plan, because the stimulus to exertion will be greater.

Capt. Ryder recommends that the daily record of attendance, proficiency, and conduct, be posted up on the walls of the school every week, month, half-year, and year, as well as the names of all prize boys.

Capt. Ryder goes into detail of the estimates of receipts and payments, and makes the education of each boy cost the Department about £2 10s. per boy per annum. The whole expense of teaching and clothing at the Hull School averages a little more than £6 per boy per annum.

Obstacles to the success of Navigation Schools.

The principal obstacles in the way of success, in addition to the inefficiency of the schools, the absence of prizes, &c., are three in number.

It is my firm belief that if the Department assist liberally the establishment of navigation schools, placing them on a proper footing, and stating that they are schools established for the sole purpose of giving special instruction in scientific subjects to boys intended for the Royal Navy and the Commercial Marine, these three obstacles will gradually vanish. They are,—

(1.) *A disinclination on the part of shipowners to enter boys.*

In reply to my inquiries the owners of steamers stated, "We don't want boys, who eat as much as men, are of very little use, and give a great deal of trouble; we want men.

Steam having superseded the use of sails to a great extent, boys, who in sailing vessels are invaluable for light work aloft, are not valued in steamers.

Many of the sailors, so-called, that we find in steamers differ very little from landsmen, except that they are not sea-sick, they can take the wheel and pull an oar. To all the valuable qualities of a true sailor, which were developed by and almost entirely due to his work aloft, viz., agility, readiness of resource, indifference to all danger that may be escaped by bodily activity, as distinct from that solid courage which all Englishmen possess, the steam sailor can lay slight claim.

In the Royal Navy we want the superior class of sailors, and if possible those alone. The partial substitution of steam for sails, while it has injured our own sailors has, in the same way and for the same reason, injured those in the commercial marine, on whose aid and support we may at any time be thrown for a supply of seamen.

It is most important, therefore, that every impulse should be given to keep up in the commercial navy both the quantity and quality of the seamen; it is much to be regretted, therefore, that the same disinclination to take boys, although fortunately in a less degree, exists among the shipowners of sailing vessels.

Lads enter on board merchant ships, some as apprentices, some as boys.

In the employment of the larger shipowners apprenticeships are highly valued.* The proportion of apprentices to tonnage at present is about 1 to 200 tons. Before the repeal of the navigation laws, it was by Act of Parliament 1 to every 100 tons.

The disinclination to enter boys will, I believe, gradually vanish when the attention of the shipowners, as a body, is attracted to the valuable class of boys who will attend the Navigation schools, for they will be induced to reflect, that although at first sight it may appear to be more economical to enter no boys or

* The value attached to an apprenticeship varies largely with the employs, the port, &c. Mr. Green charges 180*l*. for a four-years' apprenticeship as a midshipman. Large shipowners at Glasgow and elsewhere pay 36*l*. for a similar term to a common apprentice.

apprentices, or a very few only, and those at very low wages,* yet that by so doing they are contributing indirectly, but yet surely and certainly, to the deterioration of the whole class of seamen, and to the ultimate injury of the ship-owning interest.

(II.) *A disinclination on the part of parents to send their boys to sea.*

While sailors are, what they frequently are at present, not the most moral or respectable members of society, it is probable and natural that many parents would regret their sons' choice of the sea as a profession.

But as sailors and masters improve by the aid of navigation schools, where they will be instructed in their youth, and are received in sailors' homes at every port where their vessels touch, this class of objections will gradually become obsolete; and the profession of the sailor will take its proper place by that of the high skilled mechanic as one of the noblest professions a working man's son can adopt, being also one of the highest paid; 3*l.* and 4*l.* a month besides victuals and medical attendance being the not uncommon emoluments of a merchant seaman. Moreover, the profession of a sailor, if he is a steady man, may be rendered both healthy, improving, and entertaining, and acts most beneficially on the character and temper. Steam and science are rapidly diminishing the longest voyages, and long periods of absence, one of the not unnatural objections of a parent, are becoming the exception instead of the rule.

The wish to go to sea is implanted by Providence, doubtless for the wisest purposes, in large numbers of the boys of these islands, frequently in those who have never seen the sea. Those parents, ministers, or schoolmasters who take upon themselves to thwart this natural and laudable wish, going the length, as they frequently do, of treating the boy's desire as an evidence of a vagabond and depraved taste, may be fairly charged with the responsibility of the boy's immoral and depraved life, if such unfortunately is the result of his going to sea, for his naval career is probably commenced by running away from home, and he thus severs all those domestic ties which conduce so much to the preservation of purity of life and manners.

This conduct on the part of parents should be deprecated by every one who has the best interests of his country at heart.

Every respectable and well conducted boy who desires to go to sea should be aided and assisted to do so, and this course should be systematically adopted throughout the country. The Government, by the support of navigation schools, show their opinion on this subject. It only remains for the schools to be put on a proper and liberal footing, worthy of the Government and of the object which they are intended to serve. When this is done, the profession of the sailor will be rescued in the minds of the lower classes from all the odium which at present surrounds it.

(III.) *A disinclination on the part of boys to go to sea.*

This disinclination exists in some ports and not in others; it will decrease wherever it exists when Navigation schools, established on a liberal footing, offering the inducements I have suggested, are placed near the docks in every seaport town of any size or importance. It is advisable that the schools should be so placed that the boys can when out of the school play about among the shipping, witness and long to imitate the evolutions of the sailors aloft, &c.

* Owing to the low rate of wages referred to, large numbers of apprentices run away every year, after they have served a portion of their time.

An attractive evening class will have to be established for the instruction of boys who have to work for their livelihood during the day, and for apprentices. I have proposed that half the fees be given to the educational staff, to insure their taking a direct pecuniary interest in the evening class.

In concluding this report, I wish to state, that I am fully impressed with the great benefit that the establishment of good Navigation schools would confer directly on the Royal Navy, the Commercial Marine, and the country; and that I see every reason for believing, that if the schools are placed on a proper footing, the classes will be largely attended, and the schools will answer every purpose for which they are established. The limited number of thirty Navigation schools, which I have suggested, should be forthwith established, although only professing to assist in providing a sufficient supply of educated young men to fill up the vacancies among the masters and mates, yet can not fail to tell with the best effect on the commercial marine generally. For these well-educated lads, who, after leaving the Navigation schools, have to struggle through that large body, the seamen of the commercial marine, before they can win the prizes of their profession, must raise the tone of the class through which they pass.

If the thirty schools are established, and after two or three years are evidently working well, it will be worth considering whether more schools of a simpler and less expensive character should not be established to educate a sufficient number of lads fully to supply the vacancies in the seamen class.

The alterations I have proposed in the mode of payment of the educational staff are those upon which I desire to lay the most stress; they have had but one object in view, the making it the personal pecuniary interest of each member of the staff to devote himself zealously to those duties, and to no other, which the Department wishes him to perform. In individual cases, we might appeal to higher motives than these, but in dealing with a body of men, however upright and conscientious, I am firmly convinced that there is no safer course than the appealing to the lower motive in aid of the higher.

The plan of payment of the teachers of navigation schools generally, presented by Capt. Ryder, was substantially adopted by the Department having charge of this class of schools, in 1860, but was changed to the following Minute in April, 1868, on the recommendation of Capt. Donnelly, for the purpose of restricting the efforts of the teacher, and the industry of the scholars, to the subject of Mathematics, Navigation, Nautical Astronomy, and the Use of Instruments, leaving general elementary studies to be mastered in other schools.

AID TO NAVIGATION SCHOOLS AND CLASSES.

I. Payments will be made by the Department only on the results of instruction in the following subjects:

1. Mathematics, including such portions of Algebra, Geometry, Mensuration, Plane and Spherical Trigonometry, Logarithms, as far as necessary for understanding Navigation and Nautical Astronomy.
2. General Navigation.
3. Nautical Astronomy.
4. Physical Geography.
5. Steam and the Steam Engine.

II. The payments will be made to those teachers only who have taken certificates as qualified to teach the above studies.

III. Examination for teachers will be held annually in November, in South

Kingston, Dublin and Edinburgh. The traveling expenses of candidates if successful will be paid.

IV. Examination for students will be held

(1.) The adults, seamen and others, at the seaport towns where local Marine Boards are formed and are prepared to undertake them from year to year.

(2.) The youths, in inland towns once a year, the examination forming part of the general May Science examination will be held simultaneously all over the kingdom where local committees are formed to conduct them, the examination papers being supplied by the Science and Art Department.

V. The successful candidate will be classed as passed with honorable mention, third, second, and first grade certificates. In the three last, a certificate will be given to that effect. The grades of success may be improved at any future examination.

VI. The teacher will receive one, two, three, four or five pounds, according to the class of success of his pupils, on the condition that the pupil, if a boy, shall have received forty lessons, at least, from the teacher, and then goes to sea, and if an adult at sea, then he shall have received twenty lessons, at least.

VII. Should the pupil have been previously examined and payment made on his account, the twenty or forty lessons, as the case may be, must have been given since that examination, and the payment to the teacher will be the difference between that sum previously paid and the amount found due on the grade then taken.

VIII. A local committee must in all cases be formed, and from them the teacher will receive the necessary vouchers.

IX. The sum above fixed can only be considered experimental, and may be altered from year to year.

COLLEGE OF NAVAL ARCHITECTURE AND ENGINEERING.

The course of instruction at the Royal College of Naval Architecture and Marine Engineering at South Kensington was originally in subjects the same as at Portsmouth, but after careful observation of what could be accomplished in connection with practical instruction and observation in the dock-yards, the subjects have been redistributed, and the number of sessions increased.

The *first* year embraces mathematics, practical ship-building (laying off work), chemistry and metals, machinery, steam and its management, physics, drawing, and French.

The *second* year embraces the same subjects, with the addition of heat, and strength of materials.

The *third* year includes the same subjects still further pursued.

A *fourth* year was added to the course in 1868, and the whole scheme in its details has not yet been fully tested.

A portion of each year is spent in the dock-yards in practical work, under the superintendence of officers in charge of different departments of the local service.

At the close of each session of theoretical study, a rigid examination is instituted, and promotion from class to class, and final graduation with the diploma of Associate or Fellow is awarded on the results.

In 1869 there were 30 students (15 engineers and 15 shipwrights) sent by the Admiralty, and receiving their instruction free; and 10 outside or ordinary students (6 engineers and 4 in naval construction), a total of 40 students.

AGRICULTURAL EDUCATION

IN

IRELAND.

ARRANGEMENTS are now made for a systematic course of instruction in the science and practice of agriculture in Ireland, in connection with the Queen's Colleges, and the Commissioners of National Education.

PROFESSORSHIP OF AGRICULTURE IN THE QUEEN'S COLLEGES.

In each of the Queen's Colleges there is a professorship of agriculture, with a model and experimental farm, and botanical garden, all the helps and appliances of agricultural books and periodicals, and a laboratory for experiments in the scientific principles connected with this department.

The colleges are situated in different sections of Ireland, viz.: at Galway, Cork, and Belfast, and the course of agricultural instruction in each, will be modified to some extent by the peculiarities of the country in which it is located.

The course of study and of lectures extends through two years, when the student receives a "Diploma of Agriculture." The courses of lectures embrace, in the first year, natural philosophy, chemistry, natural history, and the theory of agriculture; in the second year, geology and mineralogy, history and diseases of farm animals, land surveying and the practice of agriculture.

On the model and experimental farm, and in the botanical gardens adjoining the colleges, and in connection with them, the students have an opportunity of becoming acquainted with the best kind of farm animals and machines, and with the manual and mechanical operations of practical agriculture, horticulture and arboriculture, being accompanied in their visits to see such objects and processes, by their instructors, as well as in various excursions of natural history.

Students who attend the agricultural lectures may be matriculated or non-matriculated. The former pay \$33 each year to the college; the latter pay \$9 for attendance upon any separate course of lectures. They also pay \$3 annually for access to the library, which is well furnished with agricultural publications, to which the matriculated students have access without charge.

In each of these colleges are four scholarships of Agriculture, of the value of \$97, two for each year. Candidates for these undergo certain examinations. For the first year, they must have passed the matriculation examination, viz.: in English grammar and composition, the first four rules of arithmetic, vulgar and decimal fractions, involution and evolution, proportion and simple interest, mensuration, book-keeping, and

outlines of modern geography. For the second year, the examinations are in the general principles of heat, chemistry, mechanics and hydrostatics, elements of botany and zoology, theory and composition of manures, and feeding of farm animals.

Candidates for the diplomas of agriculture pay to the college the first year, \$33; for the second, \$31. If they have scholarships, they pay only \$20 the first year, and \$18 the second.

AGRICULTURAL DEPARTMENT OF THE SYSTEM OF NATIONAL EDUCATION.

The operations of the Commissioners of National Education embrace:

1. Model Farm at Glasnevin, near Dublin.
2. Model Agricultural Schools under the exclusive management of the Commissioners.
3. Model Agricultural Schools under the management of Local Patrons.
4. Agricultural Departments in Workhouse Schools.

The working operations of several schools, and the results of the experimental model farming in connection with each, are fully set forth each year in the report of the Inspector—who in 1852 was Dr. Kirkpatrick. From his report for 1851, it appears that, besides the Model Farm and Agricultural School at Glasnevin, there were 28 Model Agricultural Schools and 37 ordinary Agricultural Schools. In these schools there were 96 boarders, and 173 pupils working on the farms, and paid out of the produce of the farms—most of whom were destined to be teachers in National Schools. The Inspector in his Report remarks:

The reports of the conductors of the several Agricultural Schools in which Industrial Classes have as yet been established are most favorable as to the utility and efficiency of such classes, and generally speak of the pupils composing them as being the most regular in their attendance at school, and the most proficient in literary and agricultural knowledge. The establishment of an Industrial Class of six pupils in every Agricultural School would be of great advantage in carrying out the different operations of the farm, and in diffusing more effectually the benefits of the agricultural department of the school. The labor of such a class for two hours each day on the farm, in performing the light work, (which can be more conveniently and economically done by boys than by men,) would be worth at least £8 per annum. Now assuming that of the 4,704 National Schools at present in operation 2,000 are favorably circumstanced for having small school farms attached to them, which might be principally cultivated by such classes, a sum of £16,000 would be annually added to the national wealth. This would be an immediate and tangible benefit, but who can estimate the value and importance of the thrifty and industrious habits of which the foundation might thus be laid among the future producers of the wealth of the country. A boy might thus, without any impediment to his literary education, earn nearly 30s. a year; and if his parents could afford to invest this in the purchase of a pig, a lamb, or a calf, which might be reared for his benefit, he paying for its maintenance with his future earnings—selling it at the proper time—investing the proceeds in additional young stock, and thus from year to year gradually adding to his little property, what a valuable step this would be towards improving the provident habits of the humbler classes! What an improvement on the old and still too general practice of allowing young lads, whose laboring in this way would be so useful, to spend the greater part of their time before and after school hours in idleness or mischief.

I think from the experience we now have had of the working of the system of agricultural education in this country, the practicability of combining agricultural with literary instruction in all schools favorably circumstanced for practically ex-

simplifying the agricultural principles to be inculcated, can not be any longer questioned. From all the information I could acquire on this subject in the course of my personal inspection, and from the statements of the local parties connected with the different Agricultural Schools, I find that in almost every instance the agricultural instruction does not in any way retard the progress of the pupils in literary studies. I have heretofore had occasion to refer to the case of the Larne School, as affording a gratifying instance of the truth of this statement; and I have again the satisfaction of stating that its pupils have a second time given public, and I trust *satisfactory* proof that at the same time they have acquired a thorough and useful knowledge of agricultural principles, they have made as much proficiency in literary instruction as if it formed the sole subject of their studies. Three of them were examined at Edinburgh, in September last, before the education committee of the General Assembly of the Church of Scotland, and several noblemen and gentlemen interested in the agricultural education of the youth of that country, on a similar plan to that carried out in connection with the National Schools here; and from the public and private accounts I have received of their answering, I think they amply fulfilled the object of their mission by affording a convincing proof of the practicability of combining agricultural and literary education in common schools, where the Teachers are properly qualified to communicate such, and to superintend the practical operations of a small farm.

I beg to direct attention to a portion of the speech delivered by Sir John McNeill, G.C.B., who presided as chairman at a public breakfast given to Mr. Donaghy by the friends of agricultural education, at the conclusion of his lectures on that subject. After referring to the necessity for and advantages of agricultural education, and the most suitable means of having it generally carried out, he thus proceeds:—"I have had occasion to visit the school conducted by your guest, Mr. Donaghy, at Glasnevin, in the vicinity of Dublin, and from the results of the experiments made in that institution, I should look with the greatest hope and confidence to the success of any scheme that might conciliate public support to enable it to be permanent. On looking to the schemes of improvement which are started every day, I think I see a disposition on the part of those who move them to look for too speedy results of their own labor. Now I am perfectly satisfied that if we are to move in this matter with the prospect of conferring benefit on the country, we must be contented to sow that others may reap. All education, mind you, is founded on that principle. He who establishes a school for the education of youth does not expect to see all those children, men, and women grown up. He does not expect to live to see the fruits of the labor that he has bestowed on them—or in many cases at least he can not expect it. He is satisfied to instill into the minds of youth those principles which are to guide their conduct in the manhood he will never see. If, therefore, we are to move in this matter let us not deceive ourselves. We, at least such of us as have the snows of many winters on our heads, are not to suppose that we are to see the result of our labors. We must be contented, if we are to do good, to drop into the ground an acorn, which may, at a distant period, produce a tree, under whose boughs many may hereafter find shelter and shade. If in this spirit you are prepared to move in this matter—if, without attempting to hold out the prospects of immediate results, you are prepared to establish a national institution, which shall grow with the growth, and strengthen with the strength, of the nation, I am prepared to go along with you in the amount of any influence or means which I possess. But if you are merely going to move for the sake of producing *immediate* effects—if you expect to see the result of your own labors—if you are not prepared to take any measures of which you may not see the result, I look for no advantage from your labors." Dr. Anderson, the distinguished chemist to the highland and agricultural society of Scotland, being called upon to express his views on the matter, said—"He had felt, ever since he had come into connection with the agriculturists of Scotland, that it was essential they should have some means of establishing a thorough and effectual agricultural education. He had thought of various plans, and had seen the great difficulty of making a commencement; but the plan they were now met to-day to discuss was a most important and practical one; as he believed the parish schools did afford them the means of carrying on this branch of education to a considerable extent. He confessed that, for his own part, he would like to see the system carried out

even more extensively than had been suggested at this meeting; and that a thorough system should be introduced over the whole of Scotland. They could not have a better educated class, as regarded general knowledge, than the agricultural classes of Scotland: but, as yet, they had no means of supplying them with that *professional* education which the present state of agriculture, and the rapid advances now making in it, rendered it necessary to possess." These remarks clearly and happily express the views that must be entertained by intelligent practical minds as to the beneficial results of a system of education such as that administered by the agricultural schools, and are admirably calculated to meet the objections of those, who, because they can not see immediate and general improvement resulting from the operations of the agricultural schools, pronounce the system a failure. Improvement can not in this instance tread on the heels of education—the latter sows the seed of which the former will in due time be the fruit; and as in ordinary cultivation some crops take only a short time to arrive at maturity, while others require a long period to attain perfection, so from the cultivation of the minds of our young farmers and laborers many beneficial results are *already* observable, but the general harvest of improvement will be slow in coming round.

The conduct and efficiency of the agricultural teachers during the past year have been in general most exemplary and satisfactory. I am enabled to speak thus favorably, not only from my own experience acquired at my different visits, but from the accounts I have received from proprietors and others who feel an interest in, and have closely watched their proceedings. They do not confine their labors to the superintendence of their schools and farms, but not unfrequently discharge the duties of "Practical Instructors" in their respective localities.

The results, in the shape of pecuniary profit, realized at the different school farms, as shown in the Appendix to this Report, differ materially; but it must not be supposed that such results are an index to the efficiency or non-efficiency of the teachers. Various circumstances besides the industry and ability of the agriculturist, will combine to affect the result of his labors, and unless where the cases are equal in respect to advantages and disadvantages, the pecuniary result of the year's operations does not afford a sure criterion whereby to judge of the merits or demerits of the system by which they were produced, although they can be useful in many other ways, such as showing the results obtained in different localities, and under different systems of management, and by comparing the results of any year with those of the preceding, the progress or retrogression in *individual* cases may be ascertained. It may be observed, and perhaps unfavorably commented on by those unacquainted with all the circumstances, that in some of the schools, especially those under the immediate management of the Commissioners, there has been a *loss* in the agricultural department; but it must be borne in mind that most of these schools are but very recently established—that in almost every case the farms connected with them were in a most wretchedly exhausted condition—that most of the energies of the agriculturists are directed to the effecting of the preliminary and indispensable improvements, and to bringing them under suitable and regular rotations of cropping; and until these preliminary measures are completed, and the farms in working order, it would be unreasonable to expect profitable pecuniary results.

The following extract, taken from a recently published and highly interesting pamphlet, bears so strikingly and prominently on this peculiar point, that I can not refrain from giving it insertion here:—"When any one acquainted with the multifarious risks which surround the farming business, takes a lease of land, he does not look for profit for several years, unless it happens to have been previously put in good condition; on the contrary, he calculates on having a heavy expenditure and little income for a considerable time. When a farm has for a number of years been starved and badly managed, to look at it, the theorist might conclude that it would not take much to put it in the same state as those richly cultivated fields adjoining. But than this there is not a more common mistake; and when landlords are of opinion that farmers can give as much rent for a wasted farm, as they may seem inclined to offer for another, which perchance is in better condition, they are not looking at the matter in a proper light. In many cases, to put the individual who has become tenant of a 'run-out' farm in an equal position with his more fortunate neighbor, who has got land exactly of a similar nature, at a rent nothing

higher, but which happens to be less severely scourged, several hundred pounds would be required; for, in improving an impoverished farm, large sums of money will be expended without making any striking change in its appearance, or without immediately yielding a profit to the improver.—*Morton's Rich Farming.*

MODEL FARM AND AGRICULTURAL SCHOOL AT GLASNEVIN.

The Agricultural Department of the Commissioners of National Education at Glasnevin, consists of a Model Farm of 128 acres, with appropriate buildings, a Model Kitchen Garden, and Nursery of fruit and forest trees, shrubs, &c., and an Industrial School. The pupils are selected by the Commissioners from the most talented and deserving young men in the various agricultural schools in different parts of Ireland; and the number for the present is limited to fifty.

The success of this great establishment in gradually diffusing over Ireland a knowledge of better methods of farming and gardening, is fully attested in the extracts which follow.

President Hitchcock in a "Report concerning an Agricultural School" to the Legislature of Massachusetts, remarks:

"This institution was established in 1838, and its grand object is to train up teachers for other schools, several hundreds of whom have already been sent out, and are spreading the knowledge here gained in other parts of Ireland. The present number of pupils is about fifty; but buildings are now in course of erection for one hundred. The pupils receive literary as well as agricultural instruction. The principal lectures are on practical as well as theoretic agriculture. The mornings as well as the evenings are devoted to study, but a large part of the day to labor. Most of the pupils, I should think, are above twenty years of age. It was vacation when I visited, yet some thirty or forty had remained to work on the farm, and I very thankfully accepted an invitation to listen to an examination of the young men in the studies they had been taught. More than twenty cheerfully came in from the field, and without changing their dress, passed a very creditable examination upon the various principles of practical and theoretical agriculture, in connection with its associated sciences. I am sure that they can not carry abroad such principles as they here presented without doing immense benefit to impoverished Ireland.

On the farm the principles taught in the school are practically illustrated. I walked over the fields, and have never, in any country, seen crops as fine, taken as a whole, of wheat, oats, beans, flax, and potatoes. The oats would probably yield eighty bushels to the acre, and the potatoes bid fair to produce seven hundred bushels, the disease having not then shown itself. The pupils have access to a good agricultural library, but I saw no collections in Natural History, nor in any other department, indeed. The place, however, being only three miles from Dublin, the pupils can resort thither for instruction in Natural History, and the inspection of specimens. There is a museum of economic geology there, which will, ere long, afford great facilities to pupils. If they can succeed in extending the skill and productiveness exhibited in this Model Farm, throughout Ireland, I am confident we should hear no more of her population as starving."

Mr. Donaghy, in his Report on the Glasnevin Farm in 1852, makes the following judicious remarks on the educational workings of this establishment.

So far as the numbers in attendance at the establishment may be considered as indicative of its continued prosperity, nothing, under the circumstances, can be more satisfactory; and coupling with this the very favorable testimony left on record regarding it by the numerous visitors who have inspected its operations throughout the year, we have every reason to be satisfied that its usefulness is becoming gradually more developed, and its agency, in effecting an improvement

in our present agricultural management, better appreciated by all who take an interest in the real welfare of the country.

Viewing the establishment, then, as an engine whereby extensive knowledge on improved agricultural practice is organized and disseminated throughout the different parts of the country—more particularly amongst those classes of the community whose circumstances debar them from acquiring such information otherwise—it recommends itself to the countenance and support of every true friend of Ireland, as an institution by means of which the amelioration of the different classes of the people, who come within the sphere of its influence, can be, so far as other external circumstances permit, ultimately effected. This it is capable of accomplishing, and that, too, “without money and without price,” on the part, at least, of the recipients of its benefits.

I need scarcely say that it would afford me, as I doubt not it would you, much gratification were I able to state that the Glasnevin Model Farm establishment is a self-supporting institution. But this it neither is, nor can be, under existing circumstances. And it is very problematical, indeed, whether or not, if it were such, it would be capable of accomplishing even a tithe of the good which it is at present effecting. Common sense will point out to any man fit to exercise a sound judgment, that no agricultural educational establishment in the world, having a *limited* quantity of land attached to it, would be able, from the sale of its produce, to board, lodge, educate, wash for, pay the traveling expenses of, afford 1s. 6d. per week, to an *indefinite* number of *free* pupils, and, at the same time, return a profit to the manager. In any self-supporting institution, a certain ratio must exist between the number of pupils boarded *free* of expense, and the extent and quality of the land cultivated; else no result in the shape of a *money* profit can be realized, as may easily be perceived by conceiving that there may be a larger number of pupils in attendance—as in our own case—than the entire produce of the farm would be capable of maintaining. But though a *money* profit is desirable, if it can at all be produced, I would ask, is a *money* profit, in reference to the affairs of an institution such as this, the proper test whereby to judge of its utility and efficiency? Most decidedly it is not. *The amount of good* effected by the operations of a public institution, constitutes, for the most part, the sole and only element of profit derivable from the expenditure attendant upon its management. Does the state expect a direct *money* profit from the expenditure of the funds set apart for the support of the Queen's Colleges? No; but from the application of those funds a more important result is expected—the education of all who can conscientiously avail themselves of the privileges thus afforded to them. Further, do the Commissioners of education contemplate that a *money* profit should emanate from the outlay consequent upon the efficient working of the Marlborough street schools? No; the object in view in this, as in the other case, is identically the same—the conferring of a great boon upon the lower ranks of the people, in the form of a good, useful, and liberal education. Well, in what does the Glasnevin Model Farm establishment differ from the cases just adduced? Is it not also an educational establishment, giving valuable gratuitous instruction to the sons of the small farmers, not only in the science and practice of husbandry, but also in general literary knowledge—matters of vital importance to the country, and of course attended with extra expense as compared with an ordinary agricultural establishment? The objects in view in each case, therefore, are precisely similar—the affording of extensive gratuitous advantages to promote the educational and social interests of Ireland out of the funds of the State—objects which the Glasnevin Model Farm establishment have promoted, is promoting, and, I should hope, will promote. A *money* profit therefore, is not the proper criterion whereby to judge of its usefulness. If so, such should also be the case in reference to the others.

But whilst the Glasnevin Model Farm establishment, with its 128 acres attached, is admirably calculated, from its proximity to the city of Dublin, for affording to the Commissioners of education the greatest possible facility for carrying out their views extensively, as regards the dissemination of agricultural knowledge, the high rent which they have been obliged to pay for the land (£5 per statute acre for one part of it, and 4 guineas per acre for the other,) in consequence, amongst other matters, of the enjoyment of this advantage; the outlay for permanent improvements required to be effected; the high charge for implements and repairs in the

locality; the amount of outlay for toll, cess, and other taxes; and the cost attendant upon the purchase and keeping in proper repair the different sets of implements for so many pupils, place it almost beyond the power of human exertion, under existing prices, to show a favorable balance sheet.

But is the fact to be altogether overlooked in forming an estimate of the results of the working of this establishment, that the Commissioners of education are able from their arrangements, as regards the locality of the farm, not only to train a class of agricultural pupils—at present 50—immediately upon it, but also to take advantage of the services of their agriculturist in delivering two courses of agricultural lectures in the year to about 200 of their schoolmasters when they are in training at their Model Schools in Dublin? And still further to enhance the value of the information which these men thus receive in the lecture-room, they are called upon by the board to visit the Model Farm once in the week, where an explanation is given to them of the courses of cropping followed, the mode of performing the different farming operations, and, in short, of the entire management pursued. Could these advantages be obtained if their principal agricultural department was situated at a considerable distance from their literary training department, without incurring much more trouble and expenditure than at present? The truth is, by this very arrangement—the proximity of the agricultural establishment to the literary training department—the Commissioners of education have been able to take the lead of all the educational institutions in Great Britain as regards the dissemination of agricultural information. Why has Scotland been heretofore unable to carry out agricultural education in connection with her present existing school system, notwithstanding an expressed desire on the part of some of her most enlightened men to effect this object? Simply, because she has no central agricultural training department in connection with one or other of her normal seminaries, at which her teachers could acquire, in addition to their other branches of education, a knowledge of agricultural science and practice. I would respectfully submit, therefore, that in forming an estimate of our transactions, throughout the year, the real and substantial advantages derived by the country from the working of the establishment should receive due consideration.

The following notice of the Model Farm at Glasnevin, where the Normal pupils are required to take practical lessons in agriculture, is taken from Colman's "*European Agriculture and Rural Economy*."

"It is considered (by the Commissioners of National Education) and with good reason, that the great want, among the people, is a want of knowledge in applying and using the means of subsistence within their reach; that there is no indisposition on their part to labor; that there is as yet an ample extent of uncultivated land capable of being redeemed and rendered productive; and that a principal source of the wretchedness, and want, and starvation, which prevail in some parts of this country, often to a fearful extent, is attributable to the gross ignorance of the laboring classes of the best modes of agriculture and of rural economy. With this conviction upon their minds, the commissioners have determined to connect with all their rural schools a course of teaching in scientific and practical agriculture, communicating a knowledge of the simple elements of agricultural chemistry; of the best modes and operations of husbandry which have been adopted in any country; of the nature, and character, and uses, of the vegetables and plants necessary or useful to man or beast; of the improved kinds of live stock, and of the construction and use of the most improved and most approved farming implements and machinery. With these views, it is their intention to train their schoolmasters, and to send out such men as are apt and qualified to teach these most useful branches. For this purpose the government have established this model farm, which was begun in 1838, and which has already, in a greater or less measure, qualified and sent out seven hundred teachers. To my mind it seems destined to confer the most important benefits upon Ireland, and I may add upon the world; for so it hap-

pens under the benignant arrangements of the Divine Providence, the benefits of every good measure or effort for the improvement of mankind proceed, by a sort of reduplication, to an unlimited extent; these teachers shall instruct their pupils, and these pupils become in their turn the teachers of others; and the good seed, thus sown and widely scattered, go on yielding its constantly-increasing products, to an extent which no human imagination can measure. Three thousand schoolmasters are at this moment demanded for Ireland, and the government are determined to supply them. Happy is it for a country, and honorable to human nature, when, instead of schemes of avarice, and dreams of ambition, and visions of conquest, at the dreadful expense of the comfort, and liberty, and lives, of the powerless and unprotected, the attention of those who hold the destinies of their fellow-beings in their hands is turned to their improvement, their elevation, their comfort, and their substantial welfare.

The Model Farm and Agricultural School is at a place called Glasnevin, about three miles from Dublin, on a good soil. The situation is elevated and salubrious, embracing a wide extent of prospect of sea and land, of plain and mountain, of city and country, combining the busy haunts of men, and the highest improvements of art and science, with what is most picturesque and charming in rural scenery, presenting itself in its bold mountains and deep glens, in its beautiful plantations, its cultivated fields, and its wide and glittering expanse of ocean. The scenery in the neighborhood of Dublin, with its fertile valleys, and the mountains of Wicklow, of singularly grand and beautiful formation, bounding the prospect for a considerable extent, is among the richest which the eye can take in; and at the going down of the sun in a fine summer evening, when the long ridge of the mountains seemed bordered with a fringe of golden fire, it carried my imagination back, with an emotion which those only who feel it can understand, to the most beautiful and picturesque parts of Vermont, in the neighborhood of Lake Champlain. I have a strong conviction of the powerful and beneficial influence of fine natural scenery, where there is a due measure of the endowment of ideality, upon the intellectual and moral character; and I would, if possible, surround a place of education with those objects in nature best suited to elevate and enlarge the mind, and stir the soul of man from its lowest depths. It is at the shrine of nature, in the temple pillared by the lofty mountains, and whose glowing arches are resplendent with inextinguishable fires, that the human heart is most profoundly impressed with the unutterable grandeur of the great object of worship. It is in fields radiant with their golden harvests, and every where offering, in their rich fruits and products, an unstinted compensation to human toil, and the most liberal provisions for human subsistence and comfort, and in pastures and groves animated with the expressive tokens of enjoyment, and vocal with the grateful hymns of ecstasy, among the animal creation, that man gathers up those evidences of the faithful, unceasing, and unbounded goodness of the Divine Providence, which most deeply touch, and often overwhelm the heart. The Model Farm and School, at Glasnevin, has connected with it fifty-two English acres of land, the whole of which, with the exception of an acre occupied by the farm buildings, is under cultivation, and a perfect system of rotation of crops. The master of the school pays for this land a rent of five pounds per acre, and taxes and expenses carry the rent to eight pounds per acre. Twelve poor boys, or lads, live constantly with him, for whose education and board, besides their labor, he receives eight shillings sterling per week. They work, as well as I could understand, about six hours a day, and devote the rest of the time to study, or learning. The course of studies is not extensive, but embraces the most common and useful branches of education, such as arithmetic, geography, natural philosophy, and agriculture, in all its scientific and practical details. They have an agricultural examination, or lecture, every day. I had the gratification of listening to an examination of fourteen of these young men, brought out of the field from their labor; and cheerfully admit that it was eminently successful, and in the highest degree creditable both to master and pupil. Besides these young men, who live on the farm, the young men in Dublin, at the Normal School, who are preparing themselves for teachers of the national schools, are required to attend at the farm and assist in its labors a portion of the time, that they may become thoroughly acquainted with scientific and practical agriculture in all its branches, and be able to teach it; the government being determined that it shall form an indispensable part of the school instruction through-

out the island. The great objects, then, of the establishment, are to qualify these young men for teachers by a thorough and practical education in the science, so far as it has reached that character, and in the most improved methods and operations of agriculture. Besides this, it is intended to furnish an opportunity to the sons of men of wealth, who may be placed here as pupils, to acquire a practical knowledge of, and a familiar insight into, all the details of farming. This must prove of the highest importance to them in the management of their own estates."

LIST OF LECTURES AT GLASNEVIN.

1. The rudiments of agricultural chemistry, geology, mineralogy, botany, and vegetable physiology, so far as they have a practical application to agriculture.
2. The nature and improvement of soils.
3. The nature, properties, and application of the several manures.
4. The effects of heat, light, and water on soils, manures, animal and vegetable life.
5. The nature, situation, and properties of farms in general.
6. The proper division of farms, with the crops suitable, according to soil and situation.
7. The situation and construction of farm buildings.
8. Rotations of crops, fencing and draining, according to the most approved principles.
9. The scientific principles of ploughing, and the general construction and use of farm implements.
10. The cultivation of green and grain crops, proper quantity of seeds, and best mode of culture.
11. Haymaking and harvesting.
12. Animal physiology and veterinary practice, and general management of horses.
13. Cattle, their several breeds, management, diseases, and modes of cure; also of sheep and swine.
14. Horse-feeding and fattening of cattle, with the improved modes of dairy management.
15. Practical gardening, under the direction of Mr. Campbell.

The results of this course of training with the teachers, are best seen in the following notice of the National School, at Larne,—an ordinary school in which agricultural chemistry and practical agriculture are provided for in the course of study.

"This is not, properly speaking, an agricultural school, but a national school, where the common branches of education are taught; and there is connected with it a department or class of agricultural study, and a small piece of land, which the boys cultivate, and on which, in the way of experiment, the principles of agriculture, and its general practice, are, within a very limited extent, illustrated and tested. The examination was eminently successful, and creditable alike to the teacher and the pupils. It was from this establishment that a detachment of five pupils was sent for examination to the great meeting of the Agricultural Society of Scotland the last autumn, where their attainments created a great sensation, and produced an impression, on the subject of the importance of agricultural education, which is likely to lead to the adoption of some universal system on the subject.

I shall transcribe the account given of the occasion: 'Five boys from the school at Larne were introduced to the meeting, headed by their teacher. They seemed to belong to the better class of peasantry, being clad in homely garbs; and they appeared to be from twelve to fifteen years of age. They were examined, in the first instance, by the inspector of schools, in grammar, geography, and arithmetic; and scarcely a single question did they fail to answer correctly. They were then examined, by an agricultural professor, in the scientific branches, and by two practical farmers in the practical departments of agriculture. Their acquaintance with these was alike delightful and astonishing. They detailed the chemical constitution of the soil and the effect of manures,

the land best fitted for green crops, the different kinds of grain, the dairy, and the system of rotation of crops. Many of these answers required considerable exercise of reflection; and as previous concert between themselves and the gentlemen who examined them was out of the question, their acquirements seemed to take the meeting by surprise; at the same time they afforded it the utmost satisfaction, as evincing how much could be done by a proper system of training.

I confess the establishment at Larne afforded me, in this respect, very high gratification. The agricultural studies are not made compulsory, but voluntary; and one hour per day is devoted to agricultural labor. The Board of Education in Ireland have now under their control three thousand teachers; and it is proposed, wherever it may be deemed useful, to make agriculture a standard branch of common school education. They already have seven agricultural training establishments; and it is in contemplation to have twenty-five, with which it is proposed shall be connected small model farms, so that every where, besides furnishing this most valuable instruction to the pupils of the schools, the farmers in the vicinity may be excited and instructed to improve their cultivation. Thus diffusive is the nature of all beneficence. A good deed, like a stone thrown into the water, is sure to agitate the whole mass. Its strongest effects will be felt where the blow is given; but the concentric circles are seen extending themselves on every side, and reach much farther than the eye can follow them. In the moral as well as physical world, the condition of mutual attraction and dependence is universal and indissoluble. We have reason to hope that no good seed is ever sown in vain, but will sooner or later germinate and yield its proper fruits.

These establishments do certainly the highest honor and credit to the intelligence and philanthropy of Ireland, and their beneficent effects must presently be seen in alleviating the indescribable amount of wretchedness under which this beautiful country and fine-spirited people have been so long crushed to the earth—a wretchedness which, to be understood, must be seen."

President Hitchcock, of Amherst in his Report to the Legislature of Massachusetts, in 1851, on Agricultural Schools, thus notices his visit to the National Agricultural School at Larne.

The farm consists of only seven acres. Yet in 1848, the head master, Mr. M'Donnell, maintained on this small plot of ground, in the very best condition, three milch cows, two calves, four pigs, and one donkey, and raised besides 32½ cwt. of wheat, 28 cwt. of oats, and 24 cwt. of potatoes. The crops growing this year, appeared unusually fine.

The in-door pupils pay \$54 a year, including instruction and board, or if upon scholarships, only \$22. The out-door pupils pay for instruction, \$17 annually. The boarders work on the farm from 6 to 8, and from 10 to 12 A. M., and from 4 to 6 P. M. From 12 to 3 o'clock daily they study in the school-room, in agriculture as a science as well as in literature; also, from 6 to 8 P. M., in an evening class under the superintendence of a teacher. They are not admitted under fifteen years of age, nor without a certificate of moral character. The course is of two or three years' duration, according to the age and acquirements of the pupils.

The agricultural instruction "embraces the principles of chemistry; the formation, nature, and difference of soils; the rotations of cropping best suited to such varieties; draining, trenching, and subsoiling, and the principles upon which their efficacy depends; house feeding of cattle, and its advantages; the constitution and properties of the different manures; the proper divisions of farms, &c., &c." To this is added a well grounded course of English education in reading, writing, arithmetic, English grammar, geography, book-keeping, mensuration, land surveying, gauging, geometry, trigonometry, algebra, and navigation.

Such arrangements are made, that each class receives religious instruction from clergymen selected by the parents or guardians. If the teacher of the school wishes to communicate religious instruction, he gives public notice of the time and place, and the pupils can attend or not, according to the wishes of their parents, or their own.

DUNMANWAY MODEL AGRICULTURAL SCHOOL.

The Dunmanway Model Farm is situated in the county of Cork, and consists of twelve acres. The following extracts, taken from the Third Annual Report of Frederic W. Connor, head master of the school, shows its condition in 1852.

The confidence placed by the public in the institution has not diminished. It has had a great increase of visitors. In the attendance of the pupils, an increase of 70 per cent. has taken place from among the various classes of society; a greater number are still anxious to be admitted, but accommodation can not be found for their instruction.

Agricultural Instruction, both of a scientific and practical nature, has been imparted regularly to the pupils during the past year, on the days appointed for giving such. There are very few subjects bearing upon agricultural economy, that have not been brought before their notice. Agricultural instruction is given in the morning, from a quarter past six to half-past eight o'clock; in the evening from nine to half-past nine; and every second week-day from half-past two till a quarter past three, P. M., or an average three hours daily. Information is communicated by lectures, and the study of approved works on agriculture and manuscripts prepared by myself accompanied in every case by searching examinations. The mode of instruction adopted has proved most satisfactory. The pupils take notes during the reading of the lecture; these they immediately transcribe while the subject is yet fresh in the memory. Then subsequently exchange their manuscripts, mutually correcting each other's errors, (including those in spelling and composition,) after which I examine and classify their papers. Thus literary and agricultural instruction go hand in hand, and the agreeableness of the method forms no ordinary incentive to improvement. After my own examination of the class, which alternates with every lecture, I permit each pupil in his turn to examine the class also; at other times to read a lecture of his own composition. Again, I submit to the pupils a series of questions to be answered by them on paper—cause them monthly to write out essays on a given subject—and weekly discuss agricultural questions. As a proof of the interest evinced by them in the prosecution of their studies, I may be permitted to state, that many of them rose at three o'clock in the morning, during the summer, for the purpose of studying the subject of their lesson for that day.

The Agricultural Boarders' Class consists of four pupils, one of whom, being a free pupil, is supported gratuitously by the board. The want of accommodation prevents a greater number being admitted. The class continues to give every satisfaction. Since it was established five young men have been advanced from it to the Glasnevin Model Farm. The selection of members for this class is generally confined to the neighboring farmers' sons—the preference being given to those previously educated at a normal school.

The Pupil-Teachers' Class continues to work well.

The Industrial Class, the members of which are selected from the agricultural class, affords great satisfaction by the order and good conduct of its members, and the efficient manner in which they perform their duties.

The Agricultural Class consists on an average of 37 pupils, the highest number we can conveniently find room for. The pupils composing this class are selected from the advanced classes of the school, who in conjunction with the agricultural boarders and pupil-teachers, receive agricultural instruction for the space of three-quarters of an hour every second week-day, and have also the privilege of attending the morning classes, where extra instruction is afforded. They are instructed in the leading principles of agricultural chemistry, geology, vegetable physiology, &c., and especially in those practical subjects bearing more directly upon their future employment. Of the 37 pupils composing the agricultural class, 30 are the sons of farmers, holding from 20 to 200 acres of land respectively.

The working pupils are required each to keep a journal of the various operations going on on the farm,—the different periods at which crops are sown and harvested,—how managed, &c.,—and many other remarks that will form a source of reliable information in after-life. Meteorological observations are also noted

down. They also take part in the preparation of the ground for the crops; assist in the sowing, reaping, &c., of all crops; in short, no operation is performed in which their assistance and attention is not so employed as to initiate them into a knowledge of those business habits required to fit them for the duties of afterlife. Permission is granted the pupils to assist their parents in sowing and managing their green crops; and, in inquiring of their parents as to the assistance they receive from the instruction of their children educated at this school, I was happy to find they are in the constant habit of exposing the errors of their fathers' and neighbors' husbandry, and contrasting the system pursued by them with that carried out on the Model Farm.

Since the institution of the agricultural class, 12 young men have been appointed out of it as Teachers of National Schools, and eight are giving assistance on their fathers' farms.

These young men may be looked upon as so many *practical instructors*, who, feeling a zealous interest in the objects of their professions, will, in their intercourse with the neighboring farmers, be the means of materially improving the intelligence and industry of the district.

WORKHOUSE AGRICULTURAL SCHOOLS.

One of the most interesting features of the present educational movement, both in England and Ireland, is the successful introduction of industrial training for pauper children into workhouses. There were seventeen workhouse schools in Ireland to which agricultural departments were annexed in 1852. Respecting the operation of these departments in the county of Antrim, Mr. Senior, one of the poor law commissioners, says:

"Each year shows an increased demand for the workhouse boys by the farmers; the age, therefore, at which the boy leaves the workhouse becomes a very early one; it probably now averages ten years. Each year also shows increased good behavior on the part of the boys, who may, perhaps, be termed apprentices."

Dr. Kirkpatrick in view of another year's experience adds: "Every year's experience convinces me more forcibly of the necessity of a general and efficient system of industrial training for pauper children, and I am happy to find that this opinion is steadily gaining ground both here and in the sister country. The facts previously stated bear me out in this assertion with respect to this country, and the following extracts, which I take leave to quote from a Parliamentary document, will show its progress in England, and may be useful in other respects."

Mr. Doyle, one of the poor law inspectors, in his Report, thus speaks of the progress of industrial education for pauper boys, and of the success which has attended it wherever introduced:

"The guardians of almost every union in this district in which there are upon an average a sufficient number of boys of an age capable of industrial occupation, either have already provided, or have determined to provide the means for their industrial training. The unions of this district being almost exclusively agricultural, the means of industrial training for boys consist chiefly in the cultivation of a few acres of land by spade husbandry. In those unions in which this system can be said to be fairly in operation, it has already been productive of much benefit, and it will be seen by the detailed accounts furnished from some of them that this mode of educating the children in habits of industry is attended with considerable profit to the guardians."

The master of the Wrexham union workhouse, in a communication addressed by him to Mr. Doyle, after describing the lamentable state of things that existed among the youthful inmates previous to the adoption of a system of industrial training, thus proceeds:

"It is these, and such like facts, which have impelled this board of guardians

to adopt some plan, if possible, to put a stop to these evils; and hence, in 1848 an acre of potato land was taken as a trial, to be cultivated chiefly by the boys. The success of the experiment was so satisfactory that the board was induced to rent, as a permanent appendage to the workhouse, a field of four acres, in which the schoolmaster in the afternoon of each working day trains the boys in spade husbandry. The profits of the first two years were comparatively small, still they have enabled us to lay in a good stock of tools; and besides, when taken together with the present year's profits, have realized in whole, in form of pauper labor, nearly £90. The statement now sent shows the result of our second year's operations in our own field, and as the general intelligence as well as the muscular capacity of the children is becoming equal to their work, we may expect greater pecuniary results; but at last the moral results likely to flow from our endeavors are the most pleasing; the children are more easily managed than formerly, are more contented and generally happier, and perform their work in a pleasing and cheerful manner. They are, I trust, in connection with the inculcation of sound principles, having those principles trained into habits, which, while they will fortify against temptation, give promise of enabling the children readily to adapt themselves to the sphere in life in which their lot is likely to be cast, and of ultimately becoming wholly independent of parochial relief. I have great pleasure in being able to add, that not one boy who has gone out to service since we began these operations has been returned on our hands, or is likely to be so."

Mr. Everest, clerk of the Atcham Union, writes to Mr. Doyle as follows:

"That the children of the poor may be efficiently taught, and so far as human means may produce the object, made useful and honorable members of society in a union workhouse, is a fact that I have long had the pleasure of witnessing in the union in which I have served from its commencement, as well as in one in which I previously served in the south of England. To illustrate the subject, I will now set forth, in as condensed a form as I can, the principles and practice maintained in the union school during the fourteen years of its operation. At first the number of children was small, the guardians feeling it desirable not to crowd their workhouse until time had afforded all parties concerned in its government a little practical experience therein. A school was at once established; but as no qualified schoolmaster applied in answer to an advertisement for such an officer, the situation was taken by a person who, though deficient in mental acquirements for such an office, was a practical agriculturist, of good moral character, and entered on his duties with a determination to do all he could for the welfare of the children put under his care. The first step was that of making the school a place of moral as well as physical training, to which I attribute its great success. For this purpose every thing that transpired was, to the extent of his ability, made the subject of some practical and familiar observations, enforced by such illustrations as became weighty by example. Industry was from the first a marked characteristic of the school, to inculcate which various indoor occupations were and still are practiced, such as knitting, netting, plaiting straw, &c., by which means it became a natural habit in the children to be doing something that was useful, so that when fatigued with heavier toils the child sat down to rest, it was, I had almost said, an instinctive feeling that led him to take his straws or needles in hand, and yet the gratification afforded when he found he had enough plait for a hat, and the pleasure evinced when by himself or his companions it was so formed, proved that his mind had received a correct bias as to production by his own application, nor was there ever occasion to enforce this practice when once begun, as it became a source of pleasure to be so engaged; but whenever we found a lazy boy it became the subject of a moral lecture, and as work was and still is held to be its own reward in our school, if a boy is found idle the punishment is simple, take him away from his work to look at the others busily employed, and so severe is this in almost every case, that I have scarcely ever known a boy remain half an hour without petitioning for liberty to go to work, and I have been equally pleased to see that others, instead of making any taunting remarks, have become petitioners in behalf of their schoolfellow.

"These may appear trifling incidents, but let guardians and officers try the plan,

and watch the issue in future service, and they will find, as I have done, that they are important facts; and I notice them because for the want of seeing this important fact at the outset, that the child is to be trained to the principle of being useful, so much of the other efforts are vain. Another important point we have always aimed at has been to teach the child to do his work well, to do that work in the right way, and then to make him understand why that particular way is best, and this gives them additional interest in their work, while it tends to make them good workmen in after-life. Our chief mode of employment is on the land we cultivate by spade husbandry, a portion of which has, from the opening of the school, been cultivated exclusively by the boys."

"Having stated the nature and practice of our school for fourteen years, it only remains to speak of its success. It has been said that the tendency of workhouse schools is to make perpetual paupers, and such statements are made, no doubt, in the full belief of their truth; but I am happy to say that, so far as fourteen years may serve for the data of calculation, it is without a shadow of foundation here. Our children go to service, and I would rather refer inquirers to their employers for their characters as servants, than speak of it myself. Suffice it to say that, with a very few exceptions, (and those of characters the most vicious and thoroughly formed before they came to us,) and one or two cases of serious illness, they have not returned, except, as is frequently the case, to visit the school where they were trained in the habits of virtue and industry, and leave behind them some trifle, either in money or otherwise, to the school fund. If we trained them up as paupers, I think many of them bid fair to forget the place of their training before they return. Scarcely a child who has been taught in our school leaves it without those feelings of affection for their associates which indicate most clearly that the mind has been cultivated, and the assistance they afford in procuring situations for those they left behind proves the genuine character of their attachments; but to return to the workhouse after going to service is felt to be a disgrace, and will, I hope, as it has hitherto done, prevent such a circumstance ever occurring except in cases that are unavoidable; and in such cases I hope that a sense of rectitude and the love of virtue will seek such an asylum in preference to crime."

Mr. Farnall, another of the poor law inspectors, states:

"On reference to the tables, it will be seen that fifty acres of land, cultivated by 514 boys, have yielded in a year a net profit of £335 7s. 1d.; there is, however, a far more valuable benefit acquired than that sum of money represents, for these boys have, in the acquirement of this pecuniary profit, been under training for manual labor; have been instructed in the value of labor, and in the connection which must be maintained between labor and property; have been made acquainted, to some extent at least, with the natural world; have felt pleasure in the contemplation of their own work; and have been trained, as far as practicable, to meet the difficulties and distresses which may beset them in their way through life."

ROYAL AGRICULTURAL COLLEGE.

THE ROYAL AGRICULTURAL COLLEGE at Cirencester, in Wiltshire, originated in a meeting of the Cirencester and Fairhaven Farmers' Club, held in November, 1842, one of the fruits of an address by Robert Feffries Brown, on the "*Advantages of a Specific Education for Agricultural Pursuits*." The advantages then set forth were appreciated by the members present, and relying on and appealing to landholders and the occupiers, a deputation of the Club, headed by Mr. Brown, made known their plan throughout the kingdom—secured from Lord Bathurst, on a long lease, a farm of upwards of 400 acres, with an appropriate site and pasture land, on favorable terms—obtained subscriptions to the amount of 12,000*l.*, and in March, 1845, secured a charter, incorporating the governors, proprietors, and donors, under the title of the Agricultural College, "for teaching the science of agriculture and the various sciences connected therewith, and the practical application thereof to the cultivation of the soil and the rearing and management of stock." The sum of 12,000*l.* being found inadequate for the objects in view, the capital was increased by subscriptions and donations to 20,320*l.*

The apparent interest in the enterprise induced the managers to make larger outlays in buildings and improvements than the funds in hand would justify, and the fee first fixed of 30*l.* for board and instruction, being inadequate to meet the actual cost, it was found in 1848 that there was a *deficit* of 10,000*l.* In this emergency, Mr. Holland, Earl Ducie, Earl Bathurst, Mr. Sotherton Estcourt, and Mr. Langston, raised 30,000*l.* on their personal security to pay the debts and increase the capital to 44,000*l.*, and were intrusted with the management of the College.

The buildings now consist of the college hall, a laboratory, and chapel, erected on an elevated site, facing Lord Bathurst's beautiful park, and commanding extensive views over Wiltshire; together with extensive farm-buildings, and a veterinary hospital. Accommodations are provided for 85 students in residence, with additional rooms for students not matriculated for the whole course, but resorting to the institution for special instruction.

The resident staff of the College consists of the Principal, the Farm Manager and Demonstrator, the Chemical Professor and his assistant, and the Professors of Botany, Veterinary Surgery, Mathematics and Surveying, and a Drawing Master. Additional courses of Lectures are secured from men eminent in their specialties. The course of instruction embraces lessons and work in practical agriculture on the farm daily, commencing at 6.30 in the morning, and in lectures on Chemistry, applied, organic and inorganic; botany; veterinary surgery; anatomy and pathology; therapeutics; mechanics, mensuration, surveying, and drawing.

The attendance of students has not been large, and probably will not be until by government grants, or numerous scholarships, the expense of

residence and instruction is greatly reduced, and the full benefits of its course of instruction will not be appropriated by students, until the practice prevails of receiving no person as pupil who has not previously spent at least one year in the practical work of the farm to acquire the alphabet and grammar of agriculture, and at the close of a two years' course arrange for at least two years' further residence with a skillful farmer, in work and further study of the most approved agricultural literature, with careful daily observation on the processes going on around him. On this basis a class of professional farmers can be trained to introduce, perfect, and illustrate improved methods.

Thus far the great improvements in English agriculture have been made by large proprietors at great cost; and by slow degrees, and through the agencies of exhibitions and the public press, and the enhanced market value of the products, these improvements have passed into the practice of the small farmers.

The Royal Agricultural College, established thus far on an outlay of 50,000*l.* in permanent structures and improvements, has slowly worked its way into the confidence of British agriculturists, who are yet widely divided as to the best mode of educating the practical farmer. Early and continued apprenticeship is generally considered the surest way.

EXAMINATION AND PRIZE SCHEME OF ROYAL AGRICULTURAL SOCIETY.

In 1865, the Council of the Royal Agricultural Society established a scheme of prizes determinable on the Cambridge Local Examinations, 81 in all, varying in value from 1*l.* to 10*l.*, for proficiency in mathematics, botany, zoology, geology, mechanics applied to agriculture, and chemistry applied to agriculture; 120 candidates, sons of farmers, and intending to pursue the vocation of farmers, were examined, and 81 succeeded, representing 25 different schools. Students of the Royal Agricultural College took the highest prizes in chemistry applied to agriculture. The same scheme was tried in 1866, with the Oxford Local Examination. Prizes to the value of 100*l.* were competed for by 45 candidates, besides two scholarships of the value of 20*l.* and 50*l.*, to assist the successful candidates in spending one year with a practical agriculturist, or at Cirencester, Glasnevin, or the Agricultural Department of Edinburgh University.

AGRICULTURAL EDUCATION IN SCOTLAND.

A PROFESSORSHIP OF AGRICULTURE was established in the University of Edinburgh in 1856, and a scheme of study and graduation in this department was instituted in 1868, and coupled with it, a course of professional instruction in Veterinary Medicine and Surgery.

VETERINARY COLLEGES.

The earliest systematic training in the treatment of the diseases and accidents of domestic animals was begun in 1791-9 by Prof. Charles St. Bel, a graduate and an assistant in the Veterinary School of Paris, in St. Pancras, Camdentown, London. It has grown into a large establishment, and the veterinary surgeons of the army must hold a certificate of graduation from its board of instruction. A medical school of this class was instituted in Edinburgh under the auspices of the Highland Society in 1856.

SPECIAL SCHOOLS OF COMMERCE AND POLITICAL SCIENCE.

SPECIAL SCHOOLS OF COMMERCE, like those of Paris and Antwerp, described in the volume on Technical Education in France and Belgium, or like another, less thorough but more strictly professional type, those in the chief cities of the United States, to be hereafter described, do not exist in England. There are, however, several which bear the name, as well as another class, the characteristic study of which is economic science, as applied to commercial transactions.

City of London School.

THE CITY OF LONDON SCHOOL is a Modern School on an old foundation, the main object of which, according to a printed statement of the Principal, and a special report of a Government Inspector, "is to prepare pupils of the middle class for the life of trades-people; to give them what is called a commercial education, or preparation for shops and merchants' offices, and, to some extent, a manufacturing career." The classification rests on a primary school in which no Latin is taught, and is entered by boys of eight years of age, and from this they pass to the middle or secondary school, from which a majority pass into business connections. Beyond the middle school there is another division, consisting, out of 650 pupils, of 80 to 90 who prepare for the University. In the Middle or Commercial School the peculiar studies are drawing, with writing and book-keeping; arithmetic, followed by algebra and geometry, with geometrical drawing; English language and literature, with French and, to some extent, Latin; geography and history, associated with the history and statistics of commerce; chemistry with physics, with special reference to domestic and manufacturing uses. The Latin, and particularly Greek, even with those who prepare for the university, is begun later than in the old Public or Grammar Schools, and with decided success so far as concerns the appreciation of the thought and style of the authors read. The Principal does not aim to give technical, but a general scientific preparation for a commercial career, and to the satisfaction of parents and employees. The school is under the management of a Committee of the City Council, which appropriated 20,000*l.* besides the site, to the building, and 900*l.* from the income of a fund towards the support of the teachers (12 class professors and 11 extra masters), who are paid up to a certain maximum according to the attendance of pupils.

King's College.

King's College, founded in 1829 in competition with University College for the patronage of residents in London, has a course of instruction framed to meet the demands of modern life; and yet provides for commercial education in the capital of England only through Evening Classes, and for young men already engaged as clerks and apprentices in mercantile houses.

BIRKBECK SCHOOLS AND ECONOMIC SCIENCE.

THE BIRKBECK SCHOOLS, so designated by their founder, Mr. William Ellis,* of London, after that eminent laborer in the field of scientific popular education, Dr. George Birkbeck,† although mainly elementary in their range and private in their management, belong to the department of technical instruction. The first was established in 1846. There are now (1869) five in London and its precincts, viz.: Southampton-buildings (Chancery-Lane), Peckham, Hackney, Gospel-Oak-Fields, and Bethnal-Green—all distinguished by the following characteristics: they are unsectarian, supported mainly by fees, and give instruction in the elementary principles of social and political economy. We have before us memoranda of a visit made to the school at Peckham, in company with Mr. Ellis, in 1852,‡ and of a lesson given by Mr. W. Shields, the ingenious and successful principal; but we adopt here the fuller notice of the system from a paper by George C. T. Bartley, in the *Journal of the Society of Arts*, Dec. 17, 1869

THE PECKHAM SCHOOL, LONDON.

The Peckham School, situated in a populous part of the south-east of London, was opened in 1852, under the management of Mr. Shields, who still conducts it. At its commencement it was on a somewhat smaller scale, but has increased from time to time, as the neighborhood gradually appreciated the excellent education to be obtained in it, until, at the present time, about 600 chil-

* WILLIAM ELLIS, founder of the Birkbeck Schools, in which the elementary principles of economic science are taught, was born in London, in 1800. Trained early to commercial pursuits, he was placed at the age of twenty-six at the head of a marine insurance office, which under his management has become one of the most successful of its class in the metropolis. Taught by Mr. Tooke in the whole subject of currency, and the phenomena of industrial life, in 1846 he began a series of lessons to the elder boys of a British School, on the subject, which were afterwards published in a little volume entitled, "*Progressive Lessons in Social Science*." About the same time he established an elementary school, in which the same subjects were taught, and the system of management more fully illustrated in the Peckham School was introduced. He is the author of "*Outlines of Social Science*;" "*Introduction to the Study of Social Science*;" "*Outlines of the History and Formation of the Understanding*;" "*Questions and Answers as to some of the Arrangements of Social Life*;" "*The Phenomena of Industrial Life*," edited by Dr. Dawes, Dean of Hereford; "*Education as a Means of Preventing Destitution*."

Mr. Ellis has expended on the Peckham School over \$40,000 as an illustration of an elementary school for the laboring classes.

† GEORGE BIRKBECK, M. D., was born at Settle, in Yorkshire, Jan. 10, 1776. He studied for the medical profession in Leeds, London, and Edinburgh, where he took his degree in 1798. In 1799 he gave his first lecture as Professor of the Andersonian Institution, at Glasgow, on Natural and Experimental Philosophy, which in 1800 he repeated with special reference to mechanics. In 1802 he established a course of scientific instruction, with practical exercises, designed for workmen who had no previous instruction of this nature. In 1806 he removed to London, to pursue the practice of medicine. In 1830 he gave a gratuitous course of seventeen lectures at the London Institution. In 1823 the mechanics of Glasgow who had attended his lectures in 1802-5, in the Andersonian Institution, asked his consent for a portrait, which they placed in the Glasgow Mechanics' Institution, established in that year. In 1823, (Oct. 18,) he issued an *Essay on the "Scientific Education of the Working Classes;"* and on the 11th of November, he presided at a public meeting called to establish the London Mechanics' Institute—and on the 15th of December, he was elected president, which office he filled until his death, Dec. 1, 1841. On the 20th of Feb., 1824, he delivered the inaugural address on the opening of his first course of lectures.

‡ For an account of this visit, and of the value of economic science in popular education, by Charles Knight, see *Barnard's Papers for the Teacher*, vol. ii. p. 107.

children are daily under the instruction of fourteen teachers. All the children are day scholars, the greater part, of course, residing in the neighborhood of Peckham, though a large number come from Walworth, and a few from even a greater distance. Of these about a quarter are girls. Those over seven years of age of either sex, have separate class-rooms and play-grounds.

The school is divided into two:—1. The infant-school for boys and girls under seven years of age. 2. The junior school. 3. The upper school. The difference between these last two divisions does not consist in the grade of advancement of the children, but is more of a social difference, the payment being higher, and the children, consequently, belonging to parents of a higher position in life.

One great disadvantage of this social feeling, which prevents parents, whatever their position or means, from sending their children to begin in the lowest class and advance as they rise in learning, is the fact that it duplicates the elementary instruction. Many of the children in the upper school require the first lessons given to the lowest classes of the junior school, and, as they can not be made into one class, a considerable amount of teaching power and time is lost.

The fees paid form a large part of the income of the school, though they are not quite sufficient to render it self-supporting. In the upper school they vary somewhat; but 12s. a quarter is the general charge. At Hackney, no less than £1 per quarter is paid in some cases; in the lower school, 6d. a-week for those under eleven, and 1s. for those over that age. But even this limited fee of 6d., to some of the poorer pupils, is sometimes an occasion of irregularity. It is found absolutely necessary to charge some fee; but, during seasons of short work, the schooling is the first thing to be stopped, and, in the winter, if sending the child to school involves the purchase of a pair of boots, this will too often be the cause of a break of some weeks in its attendance.

The system of teaching largely adopted is that of question and answer—a mode advocated by Mr. Ellis, and carried on in this school with remarkable success. Few books are used, and the children are made familiar with the objects and facts which are being described to them, and in all cases, where possible, the blackboard becomes an important auxiliary to the teacher.

A peculiarity of the institution is the entire absence of the usual stimulus given to pupils by prizes and rewards. Occasionally a book may be given to a boy on leaving, as a private present, but there is no system of competition for prizes in the different classes.

The highest boys in the school are formed into the monitor's class, and great care is taken to secure only those who, by private character and habit, are good examples of conduct, as well as apt teachers. These monitors, during certain hours, take each a few of the lower classes and form what is called a collective class. Each small division of six or seven, under its monitor, is gathered round a blackboard, and some problem in arithmetic or other subject is worked at by all; the monitor learning probably more than any by the repeated questions of his pupils. The teacher is stationed at one end of the room, and appealed to in all cases of difficulty. In this way nearly all the masters in the school have been trained.

Some attention is given to drill, both with the boys and girls, but with the latter not to any great extent, and the whole time of the pupils is devoted to mental study, no part of the day being given to industrial training.

The subjects of instruction embrace those usually given in elementary schools, and, in addition, in the junior and upper schools, geography, history, French, drawing, and elementary and practical science.

The chief feature in the infant school is the great stress laid on instructing the children in printing. This is taught almost before writing, and, judging from the excellent writing throughout the school, there can be no doubt but that the mode adopted is most successful in forming a clear, good hand. Another plan, which is carried on with the same object, is the method of requiring children to copy sentences on large sheets of paper, which are needed from time to time to hang on the blackboard, for the use of the classes. These are done with a broad quill pen, in letters an inch or more in size, and the work is found to give freedom and neatness.

Arithmetic is really taught at this school, for it is unfortunately a fact that

but few places exist where intelligent teaching of this subject is understood. The girls show an aptitude and quickness which it is unusual to see for mathematical pursuits, so much so that it suggests that possibly the female deficiency of power in following mathematical facts and reasonings may, to a great extent, be due to the imperfect manner in which they receive instruction in elementary arithmetic. Text-books are here used but rarely, and then only for obtaining examples; the rules are practically explained in a common-sense manner, and each child's understanding of them is tested daily by numerous examples. By this means, learning by heart is possible.

The amount of scientific instruction given to the children is considerable, and that, too, at an unusually early age. The youngest classes of the junior and upper school are taught the elementary principles of animal physiology and the laws of health. The mode of instruction in this is similar to that pursued in most other subjects, namely, by means of a conversational lecture, interspersed by frequent questions from both teachers and pupils. In all cases the lessons are accompanied with experiments, and all facts practically exemplified as much as possible. Thus, in explaining the nature of the skin and its uses, its physiological properties would be shown as bearing on the necessary requirements for keeping it in such a state as to enable it to perform its functions; from these, its commercial uses would be touched upon, as in the manufacture of leather and glue, and experiments made showing the processes used in these arts. To both boys and girls this instruction is given, and it is probable that no school for children of a similar description in the kingdom is so advanced as for the highest girls' class to be able to understand some of the facts concerning the Darwinian system of development of peculiarities in animals, a subject which is not considered too abstruse in this institution. This result is arrived at, not by the cram and showy system so often developed out of public and competitive examination, but by a gradual course of agreeable instruction enjoyed by the children, and likely to be permanently impressed and to have an exalting influence on their minds.

A peculiar feature is the instruction in Economic Science—such as on the sources of wealth and well-being (industry, knowledge, skill, and economy); functions of capital; nature of relations between capitalists and laborers, employers and employed, masters and servants, and capital and capitalists; wages, or shares of the produce of past labor obtainable by laborers; how increased when inadequate; division of labor; value and its fluctuations; supply and demand, and fluctuations; cost of production; interchange; measures and weights; money; prices, and fluctuations in; fidelity in performance of contracts; conditions of success in industrial life; difference between skilled and unskilled labor, or of labor with the hands, and labor with the hands and the mind combined; causes of misery, vice and crime, &c., &c.

The schools are open to all children presenting themselves, who pay the fees, provided they show proper respect to the rules and discipline. No religious doctrine is taught, and the parents of the children belong to almost every sect, the moral tone of the whole instruction being such as is rarely met among so large and so miscellaneous a collection.

In concluding these remarks, and in drawing comparisons between this school and others, it is not difficult to see why it is so eminently successful, far above schools under ordinary management. It is from the fact that the children enjoy the services of a head-master who makes them his study, and whose whole mind and unusual powers are given to render the training of the greatest possible benefit to the children in his charge. It is to be regretted that such excellent institutions as this one at Peckham do not exist in all parts of London and our great towns. The only thing to prevent it is, no doubt, the difficulty of finding men competent and willing to undertake the duty, which is not often so highly remunerated as its importance would warrant. It is clear that wherever such schools are established, there is no lack of parents of the industrial class willing and anxious to pay a considerable fee for a sound, or even an advanced education for their children.

TRACTATE ON EDUCATION

A LETTER TO MASTER SAMUEL HARTLIB.¹

BY JOHN MILTON.

MASTER HARTLIB :—I am long since persuaded, that to say and do aught worth memory and imitation, no purpose or respect should sooner move us than simply the love of God and of mankind. Nevertheless, to write now the reforming of education, though it be one of the greatest and noblest designs that can be thought on, and for the want whereof this nation perishes, I had not yet at this time been induced but by your earnest entreaties and serious conjurements ; as having my mind half diverted for the present in the pursuance of some other assertions, the knowledge and the use of which, can not but be a great furtherance both to the enlargement of truth and honest living with much more peace. Nor should the laws of any private friendship have prevailed with me to divide thus, or transpose my former thoughts ; but that I see those aims, those actions which have won you with me the esteem of a person sent hither by some good providence from a far country to be the occasion and incitement of great good to this island. And as I hear you have obtained the same repute with men of most approved wisdom and some of the highest authority among us, not to mention the learned correspondence which you hold in foreign parts, and the extraordinary pains and diligence which you have used in this matter both here and beyond the seas, either by the definite will of God so ruling, or the peculiar sway of nature, which also is God's working. Neither can I think, that so reputed and so valued as you are, you would, to the forfeit of your own discerning ability, impose upon me an unfit and over-ponderous argument ; but that the satisfaction which you profess to have received from those incidental discourses which we have wandered into, hath pressed and almost constrained you into a persuasion, that what you require from me in this point, I neither ought nor can in conscience defer beyond this time both of so much need at once, and so much opportunity to try what God hath determined. I will not resist, therefore, whatever it is, either of divine or human obligation, that you lay upon me ; but will forthwith set down in writing, as you request me, that voluntary idea, which hath long in silence presented itself to me, of a better education, in extent and comprehension far more large, and yet of time far shorter and of attainment far



more certain, than hath been yet in practice. Brief² I shall endeavor to be; for that which I have to say, assuredly this nation hath extreme need should be done sooner than spoken. To tell you, therefore, what I have benefited herein among old renowned authors I shall spare; and to search what many modern *Januas*³ and *Didactice*, more than ever I shall read, have projected, my inclination leads me not. But if you can accept of these few observations which have flowered off, and are, as it were, the burnishing of many studious and contemplative years altogether spent in the search of religious and civil knowledge, and such as pleased you so well in the relating, I here give you them to dispose of.

The end then of learning is, to repair the ruins of our first parents by regaining to know God aright, and out of that knowledge to love him, to imitate him, to be like him, as we may the nearest by possessing our souls of true virtue, which being united to the heavenly grace of faith, makes up the highest perfection. But because our understanding cannot in this body found itself but on sensible things, nor arrive so clearly to the knowledge of God and things invisible, as by orderly coming over the visible and inferior creature, the same method is necessarily to be followed in all discreet teaching.⁴ And seeing every nation affords not experience and tradition enough for all kind of learning, therefore we are chiefly taught the languages of those people who have at any time been most industrious after wisdom; so that language is but the instrument conveying to us things useful to be known. And though a linguist should pride himself to have all the tongues that Babel cleft the world into,⁵ yet if he have not studied the solid things in them, as well as the words and lexicons, he were nothing so much to be esteemed a learned man, as any yeoman or tradesman competently wise in his mother-dialect only. Hence appear the many mistakes which have made learning generally so displeasing and so unsuccessful. First, we do amiss to spend seven or eight years merely in scraping together so much miserable Latin and Greek as might be learned otherwise easily and delightfully in one year.⁶ And that which casts our proficiency therein so much behind, is our time lost partly in too oft idle vacancies given both to schools and universities; partly in a preposterous exaction, forcing the empty wits of children to compose themes, verses and orations, which are the acts of ripest judgment, and the final work of a head filled by long reading and observing with elegant maxims and copious invention.⁷ These are not matters to be wrung from poor stripplings, like blood out of the nose, or the plucking of untimely fruit; besides all the ill habit which they get of wretched barbarizing

against the Latin and Greek idiom, with their untutored Anglicisms, odious to be read, yet not to be avoided without a well-continued and judicious conversing among pure authors, digested, which they scarce taste.⁸ Whereas, if after some preparatory grounds of speech by their certain forms got into memory, they were led to the praxis hereof in some chosen short book lessoned thoroughly to them, they might then forthwith proceed to learn the substance of good things and arts in due order, which would bring the whole language quickly into their power. This I take to be the most rational and most profitable way of learning languages, and whereby we may best hope to give account to God of our youth spent herein. And for the usual method of teaching arts, I deem it to be an old error of universities,⁹ not yet well recovered from the scholastic grossness of barbarous ages, that instead of beginning with arts most easy, (and those be such as are most obvious to the senses,) they present their young, un-matriculated novices, at first coming with the most intellective abstractions of logic and metaphysics; so that they having but newly left those grammatic flats and shallows, where they stuck unreasonably to learn a few words with lamentable construction, and now on the sudden transported under another climate, to be tossed and turmoiled with their unballasted wits in fathomless and unquiet deeps of controversy, do for the most part grow into hatred and contempt of learning, mocked and deluded all this while with ragged notions and babblements, while they expected worthy and delightful knowledge; till poverty or youthful years call them importunately their several ways, and hasten them,¹⁰ with the sway of friends, either to an ambitious and mercenary, or ignorantly zealous divinity: some allured to the trade of law,¹¹ grounding their purposes not on the prudent and heavenly contemplation of justice and equity,¹² which was never taught them, but on the promising and pleasing thoughts of litigious terms, fat contentions, and flowing fees: others betake them to state affairs with souls so unprincipled in virtue and true generous breeding, that flattery, and court-shifts, and tyrannous aphorisms, appear to them the highest points of wisdom;¹³ instilling their barren hearts with a conscientious slavery, if, as I rather think, it be not feigned: others, lastly, of a more delicious and airy spirit, retire themselves, knowing no better, to the enjoyments of ease and luxury,¹⁴ living out their days in feast and jollity, which indeed is the wisest and safest course of all these, unless they were with more integrity undertaken. And these are the errors, and these are the fruits of mis-spending our prime youth at the schools and universities, as we do, either in learning mere words, or such things chiefly as were better unlearned.

I shall detain you no longer in the demonstration of what we should not do, but straight conduct you to a hillside, where I will point you out the right path of a virtuous and noble education; laborious indeed at the first ascent, but else so smooth, so green, so full of goodly prospect and melodious sounds on every side, that the harp of Orpheus was not more charming.¹⁵ I doubt not but ye shall have more ado to drive our dullest and laziest youth, our stocks and stubs, from the infinite desire of such a happy nurture, than we have now to haul and drag our choicest and hopefullest wits to that asinine feast of sow-thistles and brambles which is commonly set before them as all the food and entertainment of their tenderest and most docible age.⁹ I call, therefore, a complete and generous education, that which fits a man to perform justly, skilfully, and magnanimously, all the offices both private and public, of peace and war.¹⁶ And how all this may be done between twelve and one-and-twenty, less time than is now bestowed in pure trifling at grammar and sophistry, is to be thus ordered.

First, to find out a spacious house and ground about it fit for an ACADEMY,¹⁷ and big enough to lodge one hundred and fifty persons, whereof twenty or thereabout may be attendants, all under the government of one who shall be thought of desert sufficient, and ability either to do all, or wisely to direct and oversee it done. This place should be at once both school and university,¹⁸ not needing a remove to any other house of scholarship, except it be some peculiar college of law or physic where they mean to be practitioners; but as for those general studies which take up all our time from *Lilly*¹⁹ to the commencing,²⁰ as they term it, master of art, it should be absolute. After this pattern as many edifices may be converted to this use as shall be needful in every city²¹ throughout this land, which would tend much to the increase of learning and civility everywhere. This number, less or more, thus collected, to the convenience of a foot-company or interchangeably two troops of cavalry, should divide their day's work into three parts as it lies orderly,—their studies, their exercise, and their diet.

I. For their studies: first, they should begin with the chief and necessary rules of some good grammar, either that now used or any better;²² and while this is doing, their speech is to be fashioned to a distinct and clear pronunciation,²³ as near as may be to the Italian, especially in the vowels. For we Englishmen being far northerly, do not open our mouths in the cold air wide enough to grace a southern tongue, but are observed by all other nations to speak exceeding close and inward; so that to smatter Latin with an English mouth, is as ill a

hearing as law French. Next, to make them expert in the usefulest points of grammar, and withal to season them and win them early to the love of virtue and true labor, ere any flattering seducement or vain principle seize them wandering, some easy and delightful book²⁴ of education should be read to them, whereof the Greeks have store, as *Cebes*, *Plutarch*, and other Socratic discourses ;²⁵ but in Latin we have none of classic authority extant, except the two or three first books of *Quintilian*,²⁶ and some select pieces elsewhere. But here the main skill and groundwork will be, to temper them such lectures and explanations, upon every opportunity, as may lead and draw them in willing obedience, inflamed with the study of learning and the admiration of virtue, stirred up with high hopes of living to be brave men and worthy patriots, dear to God and famous to all ages. That they may despise and scorn all their childish and ill-taught qualities, to delight in manly and liberal exercises ; which he who hath the art and proper eloquence to catch them with, what with mild and effectual persuasions, and what with the intimation of some fear, if need be, but chiefly by his own example, might in a short space gain them to an incredible diligence and courage, infusing into their young breasts such an ingenuous and noble ardor as would not fail to make many of them renowned and matchless men. At the same time, some other hour of the day, might be taught them the rules of arithmetic, and, soon after, the elements of geometry, even playing, as the old manner was. After evening repast, till bed-time, their thoughts would be best taken up in the easy grounds of religion, and the story of scripture.²⁷ The next step would be to the authors of agriculture, *Cato*, *Varro*, and *Columella*, for the matter is most easy ; and if the language be difficult, so much the better ; it is not a difficulty above their years. And here will be an occasion of inciting and enabling them hereafter to improve the tillage of their country, to recover the bad soil, and to remedy the waste that is made of good ; for this was one of *Hercules'* praises.²⁸ Ere half these authors be read, (which will soon be with plying hard and daily,) they can not choose but be masters of any ordinary prose : so that it will be then seasonable for them to learn in any modern author the use of the globes and all the maps, first with the old names, and then with the new ;²⁹ or they might then be capable to read any compendious method of natural philosophy. And at the same time might be entering into the Greek tongue, after the same manner as was before prescribed for the Latin ; whereby the difficulties of grammar being soon overcome, all the historical physiology³⁰ of *Aristotle* and *Theophrastus*, are open before them, and as I may say, under contribution.

The like access will be to Vitruvius, to Seneca's Natural Questions, to Mela, Celsus, Pliny, or Solinus.³¹ And having thus past the principles of arithmetic, geometry, astronomy, and geography, with a general compact of physics, they may descend in mathematics to the instrumental science of trigonometry, and from thence to fortification, architecture, enginery, or navigation.³² And in natural philosophy they may proceed leisurely from the history of meteors, minerals, plants, and living creatures, as far as anatomy.³³ Then also in course might be read to them out of some not tedious writer the institution of physic; that they may know the tempers, the humors, the seasons and how to manage a crudity; which he who can wisely and timely do is not only a great physician to himself and to his friends, but also may at some time or other save an army by this frugal and expenseless means only, and not let the healthy and stout bodies of young men rot away under him for want of this discipline, which is a great pity, and no less a shame to the commander.³⁴ To set forward all these proceedings in nature and mathematics, what hinders but that they may procure, as oft as shall be needful, the helpful experiences of hunters, fowlers, fishermen, shepherds, gardeners, apothecaries; and in other sciences, architects, engineers, mariners, anatomists, who doubtless would be ready, some for reward, and some to favor such a hopeful seminary.³⁵ And this will give them such a real tincture of natural knowledge as they shall never forget, but daily argument with delight. Then also those poets which are now counted most hard, will be both facile and pleasant, *Orpheus, Hesiod, Theocritus, Aratus, Nicander, Oppian, Dionysius*; and, in Latin, *Lucretius, Manilius*, and the rural part of *Virgil*.³⁶

By this time years and good general precepts will have furnished them more distinctly with that act of reason which in ethics is called *proairesis*, that they may with some judgment contemplate upon moral good and evil.³⁷ Then will be required a special reinforcement of constant and sound endocrinating, to set them right and firm, instructing them more amply in the knowledge of virtue and hatred of vice; while their young and pliant affections are led through all the moral works of *Plato, Xenophon, Cicero, Plutarch, Laertius*, and those *Locrian* remnants; but still to be reduced in their nightward studies wherewith they close the day's work under the determinate sentences of David or Solomon, or the evangelist and apostolic Scriptures.³⁸ Being perfect in the knowledge of personal duty, they may then begin the study of economics.³⁹ And either now or before this, they may have easily learned at any odd hour the Italian tongue.⁴⁰ And soon after, but with wariness and good antidote, it would be

wholesome enough to let them taste some choice comedies, Greek, Latin or Italian; those tragedies also that treat of household matters, as *Trachiniae*, *Alceste*, and the like.⁴¹ The next remove must be to the study of Politics;⁴² to know the beginning, end, and reasons of political societies, that they may not, in a dangerous fit of the commonwealth, be such poor shaken uncertain reeds, of such a tottering conscience as many of our great councilors have lately shown themselves, but steadfast pillars of the state. After this they are to dive into the grounds of law and legal justice, delivered first and with the best warrant by Moses, and, as far as human prudence can be trusted, in those extolled remains of Grecian lawgivers, *Lycurgus*, *Solon*, *Zaleucus*, *Charondas*; and thence to all the Roman edicts and tables, with their Justinian; and so down to the Saxon and common laws of England, and the statutes.⁴³ Sundays, also, and every evening may now be understandingly spent in the highest matters of theology and church history, ancient and modern: and ere this time at a set hour the Hebrew tongue might have been gained, that the Scriptures may now be read in their own original; whereto it would be no impossibility to add the Chaldee and the Syrian dialect.⁴⁴ When all these employments are well conquered, then will the choice histories, heroic poems, and attic tragedies of stateliest and most regal argument, with all the famous political orations, offer themselves; which, if they were not only read, but some of them got by memory, and solemnly pronounced with right accent and grace, as might be taught, would endure them even with the spirit and vigor of Demosthenes or Cicero, Euripides or Sophocles.⁴⁵ And now, lastly, will be the time to read with them those organic arts which enable men at discourse, and write perspicuously, elegantly, and according to the fitted style of lofty, mean or lowly.⁴⁶ Logic, therefore, so much as is useful, is to be referred to this due place, with all her well couched heads and topics, until it be time to open her contracted palm into a graceful and ornate rhetoric taught out of the rule of Plato, Aristotle, Phalerens, Cicero, Hermogenea, Longinus.⁴⁷ To which poetry would be made subsequent, or indeed rather precedent, as being less subtle and fine, but more simple, sensuous and passionate. I mean not here the prosody of a verse, which they could not but have hit on before among the rudiments of grammar, but that sublime art which in Aristotle's Poetics, in Horace, and the Italian commentaries of Castelvetro, Tasso, Mazzoni, and others, teaches what the laws are of a true epic poem, what of a dramatic, what of a lyric, what decorum is, which is the grand master-piece to observe.⁴⁸ This would make them soon perceive what despicable creatures our common rhymers and play-

writers be; and show them what religious, what glorious and magnificent use might be made of poetry, both in divine and human things.⁴⁰ From hence, and not till now, will be the right season of forming them to be able writers and composers in every excellent matter, when they shall be thus fraught with an universal insight into things: or whether they be to speak in parliament or council, honor and attention would be waiting on their lips.⁴¹ There would then appear in pulpits other visages, other gestures, and stuff otherwise wrought, than we now sit under, oft-times to as great a trial of our patience as any other that they preach to us.⁴² These are studies wherein our noble and our gentle youth ought to bestow their time in a disciplinary way from twelve to one-and-twenty, unless they rely more upon their ancestors dead, than upon themselves living.⁴³ In which methodical course it is so supposed they must proceed by the steady pace of learning onward, as at convenient times for memory's sake to retire back into the middle ward, and sometimes into the rear of what they have been taught, until they have confirmed and solidly united the whole body of their perfected knowledge, like the last embattling of a Roman legion.⁴⁴ Now will be worth the seeing what exercises and recreations may best agree and become these studies.

II. The course of study hitherto briefly described is, what I can guess by reading, likest to those ancient and famous schools of Pythagoras, Plato, Isocrates, Aristotle, and such others, out of which were bred such a number of renowned philosophers, orators, historians, poets, and princes, all over Greece, Italy, and Asia, besides the flourishing studies of Cyrene and Alexandria.⁴⁵ But herein it shall exceed them, and supply a defect as great as that which Plato noted in the commonwealth of Sparta; whereas that city trained up their youth most for war, and these in their academies and Lycæum all for the gown, this institution of breeding which I here delineate, shall be equally good both for peace and war.⁴⁶ Therefore, about an hour and a half ere they eat at noon should be allowed them for exercise, and due rest afterwards; but the time for this may be enlarged at pleasure, according as their rising in the morning shall be early.⁴⁷ The exercise which I commend first is the exact use of their weapon, to guard, and to strike safely with edge or point. This will keep them healthy, nimble, strong, and well in breath; is also the likeliest means to make them grow large and tall, and to inspire them with a gallant and fearless courage, which being tempered with seasonable lectures and precepts to make them of true fortitude and patience, will turn into a native and heroic valor, and make them hate the cowardice of doing wrong.⁴⁸ They must be also practiced in all the locks and

gripes of wrestling, wherein Englishmen are wont to excel, as need may often be in fight to tug, to grapple, and to close.⁵⁸ And this perhaps will be enough wherein to prove and heat their single strength. The interim of unsweating themselves regularly, and convenient rest before meat, may both with profit and delight be taken up in recreating and composing their travailed spirits with the solemn and divine harmonies of music⁵⁹ heard or learned, either whilst the skillful organist plies his grave and fancied descant in lofty fugues,⁶⁰ or the whole symphony with artful and unimaginable touches adorn and grace the well studied chords of some choice composer;⁶¹ sometimes the lute or soft organ-stop waiting on elegant voices either to religious, martial, or civil ditties, which, if wise men and prophets be not extremely out, have a great power over dispositions and manners to smooth and make them gentle from rustic harshness and distempered passions.⁶² The like also would not be inexpedient after meat, to assist and cherish nature in her first concoction, and send their minds back to study in good tune and satisfaction. Where having followed it under vigilant eyes until about two hours before supper, they are, by a sudden alarm or watchword, to be called out to their military motions, under sky or covert according to the season, as was the Roman wont; first on foot, then, as their age permits, on horseback to all the art of cavalry;⁶³ that having in sport, but with much exactness and daily muster, served out the rudiments of their soldiership in all the skill of embattling, marching, encamping, fortifying, besieging, and battering, with all the helps of ancient and modern stratagems, tactics, and warlike maxims, they may, as it were out of a long war, come forth renowned and perfect commanders in the service of their country.⁶⁴ They would not then, if they were trusted with fair and hopeful armies, suffer them for want of just and wise discipline to shed away from about them like sick feathers, though they be never so oft supplied; they would not suffer their empty and unrecrutable colonels of twenty men in a company to quaff out or convey into secret hoards the wages of a delusive list and miserable remnant;⁶⁵ yet in the meanwhile to be overmastered with a score or two of drunkards, the only soldiery left about them, or else to comply with all rapines and violences. No, certainly, if they knew ought of that knowledge which belongs to good men or good governors, they would not suffer these things. But to return to our own institute. Besides these constant exercises at home, there is another opportunity of gaining experience to be won from pleasure itself abroad: in those vernal seasons of the year, when the air is calm and pleasant, it were an injury and sullenness against nature not to go out and see her riches, and partake in

her rejoicing with heaven and earth.⁶⁶ I should not, therefore, be a persuader to them of studying much then, after two or three years that they have well laid their grounds, but to ride out in companies with prudent and staid guides to all the quarters of the land, learning and observing all places of strength, all commodities of building, and of soil for towns and tillage, harbors, and ports for trade.⁶⁷ Sometimes taking sea as far as to our navy, to learn there also what they can in the practical knowledge of sailing and sea-fight. These ways would try all their peculiar gifts of nature, and if there were any secret excellence among them, would fetch it out and give it fair opportunities to advance itself by, which could not but mightily redound to the good of this nation, and bring into fashion again those old admired virtues and excellencies with far more advantage now in this purity of Christian knowledge.⁶⁸ Nor shall we then need the mon-sieurs of Paris to take our hopeful youth into their slight and prodigal custodies, and send them over back again transformed into mimics, apes, and kikshose. But if they desire to see other countries at three or four and twenty years of age, not to learn principles but to enlarge experience and make wise observation, they will by that time be such as shall deserve the regard and honor of all men where they pass, and the society and friendship of those in all places who are best and most eminent.⁶⁹ And perhaps then other nations will be glad to visit us for their breeding, or else to imitate us in their own country.

III. Now, lastly, for their diet there can not be much to say, save only that it would be best in the same house; for much time else would be lost abroad, and many ill habits got; and that it should be plain, healthful, and moderate, I suppose is out of controversy.⁷⁰

Thus, Mr. Hartlib, you have a general view in writing, as your desire was, of that which at several times I had discoursed with you concerning the best and noblest way of education; not beginning, as some have done, from the cradle, which yet might be worth many considerations, if brevity had not been my scope.⁷¹ Many other circumstances also I could have mentioned, but this, to such as have the worth in them to make trial, for light and direction may be enough. Only I believe that this is not a bow for every man to shoot in that counts himself a teacher, but will require sinews almost equal to those which Homer gave Ulysses;⁷² yet I am withal persuaded that it may prove much more easy in the essay than it now seems at distance, and much more illustrious; howbeit not more difficult than I imagine, and that imagination presents me with nothing but very happy, and very possible, according to best wishes, if God have so decreed, and this age have spirit and capacity enough to apprehend.

PROPOSITIONS FOR ERECTING A COLLEGE OF HUSBANDRY.

PRINTED—LONDON, 1651.

MASTER SAMUEL HARTLIB, the friend of Milton and co-laborer with him and Petty, and Cowley, in endeavors to promote learning and the public good in their day, thus introduces "*An Essay for advancement of Husbandry-Learning: or Propositions for the erecting a college of Husbandry: and in order thereunto, for the taking in of Pupills or apprentices; and also Friends or Fellows of the same COLLEDGE or Society.*"*

TO THE READER.

COURTEOUS READER,—I find by experience, that it is nothing but the narrowness of our spirits that makes us miserable; for if our hearts were enlarged beyond ourselves, and opened to lay hold of the advantages which God doth offer, whereby we may become joyntly serviceable unto one another in publicke Concernments; we could not be without Lucriferous employments for ourselves; nor unfruitfull to our neighbors, as now for the most part we are, only because we mind not the objects of that Industriousness, which without a mutuall concurrence can not be advanced. For mine owne part, although I can contribute but little; yet being carried forth to watch for the opportunities of provoking others, who can do more, to improve their talents, I have found experimentally that my endeavors have not been without effect as to their undertaking; for God hath brought beyond what I could imagine unto my hand from time to time, Objects of Service, answerable to the enlargement of my spirit: So that I must conclude, that it is nothing but the narrownesse of all mens spirits that makes their miseries to lye heavily upon them: for there are infinite meanes of reliefe and comfort, for all sorts of Calamities to be found in Nature, and well ordered Societies, if men were not enviously, or covetously, or peevishly, or ambitiously, or drowsily Straitened within themselves, in the use of that which God hath given them to serve the Glory of his goodness withall; towards the reliefe of themselves and others. And to waken such as are upright in heart, but yet lazie and drowisie under their Distractions, I have thought good to offer these hints to the Publique, which have a long time lain by me; that in this Hopefull appearance of Your settlement, those that droope might see a possibility (if they will not be wanting to themselves) to make themselves and others in this Nation, and juncture of time, more happie and plentifull in outward Professions than their Forefathers have been; by a Colledge or Corporation of Husbandry. For if in all other trades and Sciences, Colledges and Corporations have been and are exceedingly advantageous (if rightly ordered) for the improvement of the talents of those that betake themselves thereunto; Why may we not conclude that in the Science and Trade of Husbandry, which is the mother of all other trades and Scientificall Industries, a collegiall way of Teaching the Art thereof will be of infinite usefulness? I shall leave the thing to thy rationall consideration, that if the least part of Indus-

* In this and the following paper we shall follow the orthography of the original.—Ed.

trie is highly improved by Collegial Institution and Education, how much more may the chief part and as it were the very root of all Wealth, be advanced to perfection by this means? This Essay therefore is but an Overture, and a hint of this matter, that it may be further in due time ripened, and with more mature considerations brought to perfection, for the good of the Common-wealth, and the relief of the poor therein, which is the very earnest desire of

Thine and the Publiques Faithful Servant,

(1651)

SAMUEL HARTLIB.

PROPOSITIONS FOR ADVANCEMENT OF HUSBANDRY-LEARNING.

In humane affairs, and which relate not immediately unto God; nothing doth more tend unto the wel-being of a Nation (God giving his blessing thereunto in an humble and right use of it) than plenty of food and raiment, and of all other merchantable commodities to send abroad; which will not faile to returne the prosperity and happinesse of other nations again in exchange. And surely a Nation thus blessed can want no earthly comfort; but will doubtlesse be hated of some, feared of others, and sought to of all. But neither the one, nor the other of these are any other, then the fruits of or in the Earth: and those are not to be obtained but by the helpe of Ingenuity and Industry. The first wisely teaching, what is to be done; the second acting according to those good and right instructions diligently and carefully. By these two (instrumentally) we enjoy all outward things; and without them nothing. These are the first movers to all trades and professions under Heaven; and particularly, to that most auncient, most noble, and most necessary trade of all others, (*viz.*) good Husbandry, consisting of abundance of parts, of which these are some.

1. Tillage, or Setting, or Sowing of several sorts of corne and graine, for the reliefe and sustenance of Man and Beast.

2. The Breeding of Cattell, (in which the breeding of Sheepe may seem particular.)

3. The feeding of Cattle.

4. The use of the Dairy.

5. The planting of Orchards.

6. The planting of Gardens.

7. The breeding and feeding of Swine.

8. The breeding and feeding of the Several Sorts of tame Poultry.

9. The Planting of Hops.

10. The Sowing of Hempe, Flax, or Rape.

11. The breeding, preserving and taking of wilde beasts, as Conies, &c.

12. The breeding, preserving or taking of wilde Fowle, particularly of Duckes in and by a decoy.

13. The Making and Managing of Rivers, Moats, Ponds, &c., for the preserv- ing and taking fish of all sorts for the use and sustenance of Man.

14. The planting of Wood, and all outlandish rare or extraordinary Roots, fruits or plants.

15. The dreining, fencing, mowing, and making of grasse in meadows into Hey.

16. The Making of Malt.

17. And (that now so exceeding necessary endeavor) the planting all sorts of Wood for timber or fire.

Besides, very many others which I forbear to name, as either not so easily

practicable in this Nation, or included in or subordinate to the former, as shearing of Sheep, Threshing of Corn, &c., or not vulgarly taken for the parts of Husbandry, (though indeed they are so) as the Digging of Coal-Pits, and production of all Minerals, Quarries of Stone, or useful earths, &c. As these are encouraged and embled, so is a Nation more or less prosperous, or outwardly happy; both these in their distinct natures or uses are most excellent; and are also (at least ought to be) inseparable companions: of which if either precede it is Ingenuity; for that Industry as it is distinct from Ingenuity, can do nothing till the other have contrived what and how. Men take him for a fool or a mad man, that having store of wealth in his trunk, doth yet complain of want. What though the key be rusty for want of use? 'tis easier to get that Scoured, than to obtaine such another treasure. And surely I may upon most sure grounds say, that our Native Countrey, hath in its bowels an (even almost) infinite, and inexhaustible treasure; much of which hath long laine hid, and is but new begun to be discovered. It may seem a large boast or meer Hyperbole to say, We enjoy it not, know not, use not, the one-tenth part of that plenty or wealth and happiness, that our earth can, and (Ingenuity and Industry well encouraged) will (by God's blessing) yield.

Now whereas there hath been earnestly desired (in the mean time, till the Publique Magistrate shall be at leisure, to give a more strong and ample encouragement and assistance to a designe so exceedingly for the Honour and advancement of the whole nation) the erection of a private Colledge or Society of good Husbandry; wherein some may teach, some learne, and all practise the whole and every part of this so honourable an art, so deep a mystery, and that not only in the more customary and common way, but according to the most excellent rules, that Ingenuity and Experience gained by rational trials and real experiments have or can attaine to; that so the honour, wealth, and happiness of this State may be multiplied, even before itself is aware, and the duller members thereof worne by emulation or example to such practises for their own private and publique good, as no perswasion nor force could ever have effectually led them to. And in respect that there are already divers propositions made, and some engagements also in order thereto; so as the worke hath begun to move, and is dayly advanced, and endeavored to be advanced by some such faithfull branches; as first and chiefly seek the prosperity of the whole stock, but have not sufficient power in their owne hands to go through with, and bring to perfection this great and good work; It is therefore propounded. First, to those, whose great wealth is joined with as great vertue and love to their Countrey; And will as well as Power to advance the Publique good, without seeking their own private benefit.

That whereas it is manifest, that such a colledge or society can not be erected without the building or buying (at least a long lease at an easie rent, if not the inheritance) of some large and convenient house, with some good quantity of land adjoining, and belonging to it, (though that is not all the land which must be had for this purpose;) and it is as manifest that such a purchase can not be made without good sums of money.

It is therefore desired, that all such well-wishers to their countrey's wealth and prosperity; be pleased to contribute such sums to this good and laudable worke, as in their own wisdomes and bounties appear necessary, and deliver the same into the hands of Mr. Samuel Hartlib, whose abundant zeale for the publique good, renders him most worthy to be intrusted therewith, till there shall

be a competent stock obtained for the setting forward of this great and good worke before mentioned: and to subscribe their names and sums; that so the whole Society (when erected) and the whole nation (when in due time they shall have tasted the sweet effects from hence proceeding,) may know to-whome to render all due thanks through all ages, as to the bountifull promoters of, by contributing to a designe so much conducing to the good of the present and prosperity of all ages to come: a plentiful reward to every noble spirit.

It is therefore also propounded, secondly:

To those whose good wills possibly are great, but their powers lesser then the former; and are therefore necessarily withheld from such free and voluntary contributing.

That whereas the knowledge and good influence of the actings of this society and its members, can not without a good large, and considerable stock encrease in its number and power, nor cast itselfe into all the formes of practise in the several parts of this art before mentioned, or that may be mentioned: and for want of which, the maine end of the erection of this Colledge or Society would not be obtained, viz, the infusing into the more sturdy Husbandmen of the nation in generall (now too much wedded to their more customary and lesser profitable working) the more perfect principles of their own art, and such additional uses and instruments, as shall make their practises more national, easie, and really effectual, and beneficial, as to themselves: so to the advancement and encrease of publique plenty and welfare. It is therefore offered, that whosoever shall disburse and engage any sum, for the encrease of that stock, and consequently the employment of the Society: Shall by an unerring, unaltering rule, receive yearly; while his money remains in the hands of the Said Colledge, for every 100. pound, 20. pound, and so for a greater or lesser sum proportionably. And if any particular person shall desire to have his sum disbursed, to be employed in any one particular *single* part of this copious art here before mentioned; he shall have his desire fulfill'd: provided that his stock be sufficient to drive on that way; and that he be contented to forbear his revenue till Nature hath produced the returne. And whosoever shall thus engage, shall at any time (upon six moneths warning given) call in and again receive his sum formerly disbursed. And all those that shall thus engage, are desired to enter their names and Sums, by subscribing and delivering the money into the hands of Mr. Samuel Hartlib. And for security they shall have; As to law, the Propounders bond; as to Love, the word of him that desires to prove himselfe a just and honest Man, to God and man, (to his utmost power) and to all engagers a faithful Steward.

PROPOSITIONS, for the erecting a Colledge of Husbandry: and in order thereto for the taking in of Pupils or apprentices: and also Friends or Fellowes of the Same Colledge or Society.

I PROPOUND, that there may be a Colledge or School of all the sorts and parts of good-Husbandry erected; that so the knowledge and practise may become more universal, and men may have more sweet invitations and stronger allurements, to seek the knowledge of this deep and excellent mystery; and practise it to the advancement of a more general and Publique good; Not as now in a sordid clownish way for meer selfe profit; nor as now according to unsound and rather customary than rational rules and grounds; Nor as now in a dishonorable drudging way; which indeed is the grand cause that hinders or takes off the most ingenious spirits (which yet are most fit to be engaged.) For

it is plain, that the chief reason, why this so excellent an art, hath hitherto arrived at no greater perfection, is; that no publique course of incouragement and high prizing the same hath been thought of; and so the best wits shut out, that should have searched it out, and discovered this art more perfectly; which once generally known, together with the vast advantages thereby arising, as to the whole Nation; so to every particular practitioner; we need not fear to want disciples. It is most evident, that those few ingenious persons, that have looked into the wayes of improvement (having some thing also to work upon) of late years have advanced their particular interests to a double or trebble proportion. I am very confident, that those very improvements may again be doubled by yet better wayes.

That therefore Ingenuity may be ransomed from her too tedious captivity; and Industry awaked from a kind of lethargie; occasioned through wonted discontent; I PROFOUND more particularly, (to lay a little foundation for such a Colledge or Society, which I doubt not, time, emulation, and my own profit, will agree to finish,) That If any person of quality have a son or kins-man 15 years old or upwards, with whom he will give (besides well suiting him with all necessary wearing apparel, and more, to the value of twenty marks; in such other necessaries, as the undertaker shall appoint) 60*l*. 1*s*. in ready (£ I suppose)—money at his first entrance, and bind him apprentice for seven years; he shall be in that time faithfully instructed in both the Theorick and Practick parts of this (of all others) most auncient, noble, and honestly gainfull art, Trade, or Mystery. And at the end of that time, he shall receive at one entire payment to set up withal, 300 pound. And shall for foure years next ensuing the end of the said seven years, receive at the end of every year 100. pound more; the better to support him till he have taken sufficient root.

NOTE, That none are to be actually entertained till there be at least 10. entered; at which entrance, they are to pay onely 10. pound apiece, and for farther performances reciprocal Subscriptions. And when there are 10. entered, they are all to be ready upon a moneths warning to appear, pay down the other 50. pound apiece.

NOTE, That not above 36*l*. will be entertained at first, neither afterwards; but as by death, expiration of time, &c., there shall happen to be some wanting of that Number.

Into this Colledge also any man may enter himselfe as a free-man, or friend to, and Member of the Society; upon the following conditions.

1. He must pay down at his entrance 50. pound, as given to the Society for the encouragement of Ingenuity in the practise of Experiments, for the obtaining of yet more and more perfection in this (almost) infinite Science.

2. He must bring with him some skill, at least Ingenuity; and testifie himself to be a well-willer to the profession and professors of Good-Husbandry; and particularly to the Master and Fellowes of this Society.

3. He must produce at least 250. pound as a Stock to set up for Himselfe, to be driven by himselfe, according to the best direction and assistance to be given by the Master and Fellowes of the Colledge.

4. He shall (not Swear, but) Subscribe himself under hand and Seale, a faithful seeker of the advancement of the Mystery and Society; and to be aiding and assisting, to the Master and the Fellowes to his power, at all times, and in all cases, (his own interest alwayes preserved) and to consent and submit to all such orders, as shall be from time to time made, by the agreement of the Master and

the major part of the Fellowes of the said Colledge, for and concerning the same Society, and to stand to their award in any case of difference: and not directly or indirectly to discover all or any part of the same art, or Mystery to any person whatsoever, upon any pretence whatsoever, without their consent first had and obtained.

5. He must be alwayes in commons at the Hall of the said Society; at the rate of 8s. per week, or such other rates more or lesse, as the then present state of things shall require. And he is alwayes to pay off all arreares at the end of each moneth at the farthest, without any deductions for absence how long or short soever. But if he keep a servant (who must also be in commons when present) he shall be allowed to deduct for his absence. As also he is not to be accomptable to the stable for his horse when absent.

6. He shall at his first entrance, pay for himselfe 10. pound, for his servant 5. pound, for his horse 40s. for their habitation; besides providing for all necessary furniture; but be ever after free till death or departure.

7. Lastly, he must be a single man; and if he shall at any time marry, he is from thenceforth to be accompted dead to the Society, to all intents and purposes whatsoever; save onely in point of debt or discovery.

HONORED SIR,—

The more I finde and consider of the generall backwardnesse of men, to accept or joine with me in the wayes by me propounded, for Mutual Prosperity; the more I am taught to view and review the things propounded, and that impartially. In order to this, I finde upon enquiry, that the maine objections against what I offer are three, viz:—

First, The supposed impossibility of performing (on my part) the thing promised.

Secondly, The Newnesse of the Invention or Contrivance, which renders it within the list of things suspected.

Thirdly, The non appearance of any such good security as is held sufficient to encourage men to joyne with me freely, fully and speedily (that is, seasonably,) to these I answer thus:—

First, upon most assured, and generally experimented grounds I affirme; that one acre of good ground to be sowed with wheate in the more usuall way of Husbandry, will (one place in this nation with another) require the charges or expence following, viz., for rent 13s. 4d. Dung 24 loads at 1s. 3d. per load £1 10s. Seed 9 pecks, usually worth 13s. 6d. (now more) twice ploughing, sowing, harrowing, &c., usually 10s. (now more,) for weeding 3s., for reaping, &c., 6s. 8d. for fencing one (acre amongst many,) 3s. 4d. Which in all amounts to £3. 19s. 10d. Out of which deduct 20s. which will remaine to be accompted with the following crops, in respect of the vertue of the Dung remaining still in the land. Thus the charge of sowing one acre of Wheat, amounts to 2 pound 19s. 10d., and for the returne of this, it is not unusuall to have 3, 4 or 5 quarters: but take it at the lesser, and more generally certain rate, of three quarters on an acre, and value that at the more constant and lesser price of 5s. a bushel, or 40s. a qr., yet the returne amounts to 6 pound, which is double to the charge. I could illustrate this with many other examples as full, but let this suffice.

To the second I say, that the newnesse of my better way of planting or disposing of Corne into the ground, so as (God blessing my endeavors) to obtaine a yet greater increase; is so farre (well weighed) from being a reason to hinder:

that it is to me, and may be to others (when once rightly understood) a *spurre* to hasten towards such an engagement or conjunction: When it is considered that the invention is yet our own, entirely; and consequently the most just and ready way to wealth and all that outward honor and happiness (that accompanies riches well gotten) is open to us, and to us principally; we having the opportunity (while we prepare for, and open the door to so great a Publique Good,) to christen our own child first, (as they say) which also is most lawful and appointed, that the ox that treadeth out the fodder, shall not be muzzled. Which of all those (almost infinite) wayes or means, by which man hath been made instrumental to the increase of his own well-being, was not in one age or other, as *New* as this *Invention* of mine doth seem to be in this? Certainly it is not the Newness, but the *Vanity* or *Inutility* of any Invention, that layes it open to the dislike of the more wise and noble persons: or if the newness of an invention can any way render it fit to be Suspected, it is onely in such as being altogether new, seem also to disagree with natural reason, and tread quite beside the path of experience; of this kinde it would be, if a man should pretend to make bread of stones; but to say, that I can make more or better bread of the same wheate, will appear impossible to none but inconsiderate persons. And the thing which I hold forth is nothing else, but to scrow the most profound mystery of good Husbandry a note or two Higher; but to do the same thing by a better way, and to more advantage.

To the third and last, before I answer I will so farre digresse, as to enquire, what is or can be here meant by security? If it be required in the most high and strict sence, 'tis vaine and impossible to be had in humane affaires, and is not to be had or hoped for in this world, where the moth and rust do corrupt, and where thieves break through and steal: this is onely to be had in Heaven; and can be no way procured on earth; but by laying up the treasures of good workes: therefore he that will put forth his money upon good security indeed, must vent it in the wayes of Charity and Piety, as relating to God's glory and his soules eternal happiness; at least in a way of bounty and nobleness for the Publique good of his neighbour and native countrye, as relating to his good fame after death. But if by security be meant something more moderate and ingenuous, onely a providential care to defend a man's selfe from being abused; so farre as such prosecutions are just, and agreeable to good reason, and the nature of the thing in question. I allow; and approve of it altogether; but not when it rather proceeds from forwardnesses base and groundlesse suspicion, and a naturall aversness and enmity to all good. Thus when a man lends to another *Politically* as a meer man, he requires bills, bonds, mortgages, or the like. But if he gives he doth not so, neither if he lend to the poor, or to persons so just, that he esteems their word sufficient. I suppose there are very many in London, that do frequently take up great sums without giving any formal security; nay that would take it for a great affront to have such a thing required of them; and yet surely it is no absolute miracle to see such a one break: why then are men so easie in that, and so difficult in this? or is it for the Mutual advance of Trade? Why, that very argument serves here too; unlesse they be resolved to advance no trade but their own. And even that also comes in here; for what trade can more advance the Engagers *Private*, then that which is faithfully driven on for the prosperity of him and his posterity? or what can more magnify a great and populous city, then to stand in the midst

of a fertile soile, that affords her plenty and abundance of all good things, which is already the happinesse of London? and this happinesse shall by this meane, by God's blessing given unto and upon this means, be continually increased.

Again, it is rationall when men lend money for little or no advantage to themselves, but onely to do their friend a courtesie, it is but reasonable, that they should by all good meanes secure the repayment of their principall. But when men put forth their moneys in hope of great advantage, they must, and do usually forbear to stand upon such precise security; rightly considering, that God's providence is (as the best inheritance, so also) the best security that can be named, and will not faile to returne with a blessing any thing that shall be thereto intrusted faithfully. Thus, what other security (more then rational probabilities) hath the souldier; that ventures his life, limbs, liberty and all, and this without any other security than a good conscience (or a good confidence at least) in life or death; resting in that successe the Lord of Hosts shall please to appoint.

Thus the merchant puts (if not always himselfe: yet) his estate into a weak wooden vessel: and commits it to the mercy of the winds and waves, having set up his rest in the goodnesse of that God that parted the Red-Sea by his power. Thus, the mineralist layes out much money in sincking his pits and quarries, onely in hope to finde that richer veine he conceives to be there. Thus the patient commits his life, health and case, (under God) into the physicians hands, as relying on his care and skill. I say, that all theese, and many more, even all men in almost all humane actions, runne some kind of hazard; and more or lesse do and must depend upon God's mercy and Man's integrity, without any other outward formal security. Thus also do I propound (and that upon probabilities as certain and rational (if not more as any of these) that we may agree, engage, and sowe in hope; that that God that never suffers hope (rightly placed) to be frustrate; may make us return and bear our sheaves with us, may make our valleys stand so thick with corne, that they shall laugh and sing. Which that it may be thus, shall alwayes be the faithfull desire and earnest prayer of Sir,

Your most obliged, faithfull, and humbly
thankfull friend and Servant.

SIR,—By what is above said, and by many other very evident reasons, it is or may be proved, that in such a case as this, it is not much rational to demand any other security than the Propounders own obligation for performance of covenants. Yet that all men may know, that my intentions are fair and just, and my aimes not simply at my own private profit; but that I, also much more desire the prosperity of my nation, and of all persons that shall joyne with me, I offer and am content, that if the subscribers and consequently engagers shall think fit to meet, and amongst themselves chuse three such as I shall also like of, I will endeavor to give them (in the behalf, and as the Trustees of and for all the rest,) some more plain and satisfactory security, which is impossible to be done, to every particular person, that shall perhaps underwrite and engage onely 25. pound, or some such sum.

PLAN OF A TRADE OR INDUSTRIAL SCHOOL.

EXTRACTS FROM "THE ADVICE OF W. P. TO MR. SAMUEL HARTLIB," FOR THE
ADVANCEMENT OF SOME PARTICULAR PARTS OF LEARNING.

LONDON, PRINTED, A. D. 1647.

In the "Epistle dedicatory to his honored friend Master Samuel Hartlib," W. P. (afterwards Sir William Petty,) the founder of the Lansdowne family, says:—

"I have had many flying thoughts, concerning the advancement of reall learning in generall, but particularly of the education of youth, Mathematicks, Mechanicks, Physicks, and concerning the History of Art and Nature, with some more serious ones concerning your owne most excellent advices for an Office of Public Addressa.* And indeed they were but flying thoughts, for seeing what vast summes were requisite to carry on those designes, and how unwilling or unable men generally were to contribute towards them, I thought it but labour lost to fix my mind much upon them."

The "Advice," begins as follows:—

"To give an exact definition or nice division of Learning, or of the advancement thereof, we shall not undertake (it being already so accurately done by the great Lord Verulam.) Intending only to shew where our owne shoe pincheth us, or to point at some pieces of knowledge, the improvement whereof, (as we at least conceive) would make much to the generall good and comfort of all mankind, and withall to deliver our owne opinion by what meanes they may be raised some one degree neerer to perfection.

But before we can meddle with this great work, we must first think of getting labourers, by appointing some generall rendezvous where all men either able or willing to take up armes against the many difficulties thereof, may finde entertainment.

That is to say, we must recommend the Institution of an Office of common Addressa, according to the projection of Master Hartlib, (that painfull and great instrument of this designe) whereby the wants and desires of all may bee made knowne unto all, where men may know what is already done in the businesse of Learning, what is at present in doing and what is intended to be done: to the end, that by such a generall communication of designes and mutuall assistance; the wits and endeavours of the world may no longer be as so many scattered coales or fire-brands, which for want of union, are soone quenched, whereas being but layed together they would have yielded a comfortable light and heat. For methinkes the present condition of men is like a field, where a battle hath beene lately fought, where we may see many leggs, and armes, and eyes lying here and there, which for want of a union and a soule to quicken

* In 1643, Hartlib presented a Memorial to the two Houses of Parliament for the establishment of an Office of Public or Common Address—A sort of Universal Exchange of Demand and Supply, which Memorial was afterwards embodied in a pamphlet of 24 quarto pages.

and enliven them, are good for nothing but to feed Ravens; and infect the aire. So we see many wittes and ingenuities lying scattered up and downe the world, whereof some are now labouring to do what is already done, and pushing themselves to reinvent what is already invented. Others we see quite stuck fast in difficulties, for want of a few directions, which some othre man (might he be met withall) both could and would most easily give him; againe one man wants a small summe of money, to carry on some designe, that requires it, and there is perhaps another, who hath twice as much ready to bestow on the same designe, but these two having no meanes ever to heare the one of the other, the good work intended and desired, by both parties doth utterly perish and come to nothing: but this we passe over aleightly, though very fundamentale to our businesse, because the master-builder thereof himself hath done it so solidly. Having by this meanes procured workmen and what else is necessary to the worke, that which we would have them to labour in, is, how to finde out such arts as are yet undiscovered, how to learne what is already knowne, by more compendious and facile wayes, and to apply it to more, and those more noble uses, how to work in men an higher esteeme of learning so as to give occasion, encouragement, and opportunity to more men to apply themselves to its advancement. The next thing then to be done, will be:—

1. To see what is well and sufficiently done already, exploding whatsoever is nice, contentious, and meerly phantasticall. All which must in some measure be suppressed and brought into disgrace and contempt with all men.

2. This survey may be made by perusing all books, and taking notice of all mechanickall inventions.

3. In this perusall, all the Read or Experimentall Learning may be sifted and collected out of the said books.

4. There must be appointed able readers of all such books, with certaine and well limited directions what to collect out of them.

5. Every book must be so read by two severall persons apart, to prevent mistakes and failings from the said directions.

6. The directions for reading must be such, as the readers observing them, may exactly agree in their collections.

7. Out of all these bookes, one booke or great work may be made, though consisting of many volumes.

8. The most artificiall indices, tables or other helps, for the ready finding remembering, and well understanding all things contained in these bookes must be contrived and put in practice.

Having thus taken the height or pitch whereunto al arts and sciences whatsoever, are already come; and observed where they now stick, the ablest men in every respective faculty must be set apart, to drive them on further with sufficient maintenance and encouragement for the same.

Whereunto it is requisite that two or three, one under another, be employed about each faculty, to the end that some of them dying, or any otherwise failing, there may never want men acquainted with the whole designe, and able to carry it on, with the help of others to be admitted under them; and that at least yearly accounts be taken of these mens endeavors, and rewards be proportioned to them accordingly. And now we shall think of whetting our tooles, and preparing sharp instruments for this hard work, by delivering our thoughts concerning education, which are,

1. That there be instituted *Ergastula Literaria*, literary-work-house, where

children may be taught as well to doe something towards their living, as to read and write.

2. That the business of education be not (as now) committed to the worst and unworthiest of men, but that it be seriously studied and practised by the best and abler persons. That all children of above seven yeares old may be presented to this kind of education, none being to be excluded by reason of the poverty and inability of their parents, for hereby it hath come to passe, that many are now holding the plough, which might have bene made fit to steere the state. Wherefore let such poor children be employed on works whereby they may earne their living, equall to their strength and understanding, and such as they may performe as well as elder and abler persons, viz., attending engines, &c. And if they can not get their whole living, and their parents can contribute nothing at all to make it up, let them stay somewhat the longer in the work-house.

That since few children have need of reading before they know, or can be acquainted with the things they read of, or of writing, before their thoughts are worth the recording, or they are able to put them into any forme (which we call inditing) much lesse of learning Languages, when there bee books enough for their present use in their owne mother tongue; our opinion is, that those things being withall somewhat above their capacity, (as being to be attained by judgement, which is weakest in children) be deferred awhile, and others more needful for them, such as are in the order of nature before those afore mentioned, and are attainable by the help of memory, which is either most strong or unpreoccupied in children, be studied before them. We wish therefore that the educands be taught to observe and remember all sensible objects and actions, whether they be naturall or artificiall, which the educators must upon all occasions expound unto them. That they use such exercises, whether in work, or for recreation, as tend to the health, agility and strength of their bodies.

That they be taught to read by much more compendious meanes then are in common use, which is a thing certainly very easie and feasible. That they be not onely taught to write according to our common way, but also to write swiftly and in reall characters, as likewise the dextrous use of the instruments for writing many copies of the same thing at once.

That the artificiall memory be thought upon, and if the precepts thereof be not too farre above childrens capacities. We conceive it not improper for them to learn that also. That in no case the art of drawing and designing be omitted, to what course of life soever those children are to be applied. Since the use thereof for expressing the conceptions of the mind, seemes (at least to us) to be little inferiour to that of writing, and in many cases performeth what by words is impossible.

That the Elements of Arithmetick and Geometry be by all studied, being not onely of great and frequent use in all humane affaires, but also sure guides and helps to reason, and especiall remedies for a volatile and unsteddy mind. That effectuall courses be taken to try the abilities of the bodies and minds of children, the strength of their memory, inclinations of their affections either to vice or vertue, and to which of them in particular, and withall to alter what is bad in them, and increase and improve what is good, applying all, whether good or bad, to the least inconveniencie and most advantage.

That such as shall have need to learne foraine languages, (the use whereof would be much lessened were the reall and common characters brought into

practice) may be taught them by incomparably more easie ways then are now usuall.

That no ignoble, unnecessary, or condemned part of learning be taught in those houses of education. So that if any man shall vainely fall upon them he himselfe onely may be blamed.

That such as have any naturall ability and fitnessse to musick be encouraged and instructed therein.

That all children, though of the highest ranke, be taught some gentile manufacture in their minority. Such as are,

Turning of curious figures.

Making Mathematicall instruments. Dials and how to use them in astronomical observations.

Making Watches and other Trochilick motions.

Limning and painting on Glass, or in Oile colors.

Graving, Etching, Carving, Emboosing, and Molding in sundry matters.

The Lapidaries art of knowing, cutting and setting Jewells.

Grinding of Glasses Dioptrickall, and Catoptrickall.

Botanicks, and Gardening.

Making Musical Instruments.

Navarchy and making Modells for buildings and rigging of ships.

Architecture and making Modells for houses.

The Confectioners, Perfumers, or Dier's arts.

Chymistry, refining Metalls and counterfeiting Jewells.

Anatomy, making skeletons, and exarnating bowells.

Making Mariners Compasses, Globes, and other magnetick devices.

And all for these reasons:—

1. They shall be lesse subject to cousened by the artificers.
2. They will become more industrious in generall.
3. They will certainly bring to passe most excellent works, being as gentlemen, ambitious to excell ordinarie workmen.
4. They being able to make experiments themselves, may doe it with lesse charge, and more care than others will doe it for them.
5. The *Resp. Artium*, will be much advanced, when such as are rich and able, are also willing to make Luciferous experiments.
6. It may engage them to be Mecænates and Patrons of Arts.
7. It will keepe them from worse occasions of spending their time and estates.
8. As it will be a great ornament in prosperity, so it will be a great refuge and stay in adversity, and common calamity.

As for what remaines of Education, we can not but hope that those, whom we have desired should make it their trade, will supply it, and render the idea thereof much more perfect.

We have already recommended the studie of Arithmetick and Geometry to all men in generall, but they being the best grounded parts of speculative knowledge, and of so vast use in all practicall arts. We can not but commend deeper enquiries into them. And although the way of advancing them in particular, may be drawne from what we have already delivered, concerning the advancement of learning in generall, yet for the more explicite understanding our meaning herein, we referre to Master Pells most excellent idea thereof written to Master Harlib.

In the next place for the advancement of all Mechanicall Arts and Manufactures. We wish that there were erected a Gymnasim, Mechanicum, or a Colledge of Trades-men (or for more expedition untill such a place could be built, that the most convenient houses for such a purpose may be either bought or hired) wherein we would that one at least of every trade (but the prime most ingenious work-men, the most desirous to improve his art,) might be allowed therein, a handsom dwelling rent free. Which with the credit of being admitted into this Society, and the quick sale which certainly they would have of their commodities, when all men would repaire thither, as to a market of rare and exquisite pieces of work-manship, would be a sufficient motive to attract the very ablest mechanicks, and such as we have described, to desire a fellowship in this Colledge.

From this Institution we may clearly hope when the excellent in all arts are not onely neighbours, but intimate friends and brethren, united in a common desire and zeal to promote them, that all trades will miraculously prosper, and new inventions would be more frequent, then new fashions of clothes and household-stuffe. Here would be the best and most effectuall opportunities and means, for writing a History of Trades in perfection and exactnesse, and what experiments and stuffe would all those shops and operations afford to active and philosophical heads. Out of which, to extract that interpretation of nature, whereof there is so little, and that so bad as yet extant in the world? Within the walls of this Gymnasium or Colledge should be a *Noeocomium Academicum* according to the most exact and perfect idea thereof a compleate Theatrum Botanicum, stalls and cages for all strange beastes and birds, with ponds and conservatories for all exotick fishes, here all animals capable thereof should be made fit for some kind of labor and imployment, that they may as well be of use living as dead; here should be a Repositorie of all kind of rarities.

Naturall and artificiall pieces of antiquity. Modellls of all great and noble engines, with designs and platformes of gardens and buildings. The most artificiall fountaines and water-works. A library of select books, an astronomicall observatory for celestially bodies and meteors, large pieces of ground for severall experiments of agriculture. Galleries of the rarest paintings and statues, with the fairest globes and geographical maps, of the best descriptions, and so farre as is possible, we would have this place to be the epitome or abstract of the whole world. So that a man conversant within those walls, would certainly prove a greater schollar then the walking libraries so called; although he could neither write nor read. But if a child, before he learned to read or write, were made acquainted with all things, and actions (as he might be in this colledge,) how easily would he understand all good books afterwards, and smell out the fopperies of bad ones. As for the situation, modell, policy, oeconomy, with the number of officers and retainers to this Colledge, and the priviledges thereof, it is as yet time enough to delineate. Only we wish that a society of men might be instituted, as carefull to advance arts as the Jesuites are to propagate their religion for the government and managing of it.

But what relish will there be in all those dainties whereof we have spoken, if we want a palate to tast them, which certainly is health the most desirable of all earthly blessings. And how can we in any reason expect health, when there are so many great difficulties in the curing of diseases, and no proportionable course taken to remove them? We shall therefore pursue the means of acquiring the publicke good and comfort of mankind a little further, and vent

out conceits concerning a Nosocomium Academicum or an hospitall to cure the infirmities both of physicians and patient.

We intended to have given the most perfect idea of this Nosocomium Academicum, and consequently to have treated of the situation and fabrick of the house, garden, library, chymicall laboratorie, anatomical theater, apotheca, with all the instruments and furniture belonging to each of them; as also of the whole policy and oeconomy thereof."

The writer prepares to realize his Nosocomium out of the Old Hospitals "under the reforming hand of authority," after giving some hints as to the organization of his College of Health, he proceeds:—

"Having now after a fashion gone through the description of such Societies and Institutions, as we have thought most fit for the advancement of reall learning, and among the rest, of the *Ergastulum Literarium* for the education of children, we now come to speak of such bookes, as being well studied and expounded in those schooles, would lay a very firme foundation of learning in the schollers.

We recommend therefore in the first place (besides those bookes of collection, by us formerly mentioned, and Master Pells three Mathematical Treatises,) the compiling of a work whose title might justly be 'Vellus Aureum sive Facultatum Lacriferarum Descriptio Magna,' wherein all the practised wayes of getting a subsistence and whereby men raise their fortunes, may be at large declared. And among these, we wish that the History of Arts or Manufactures might first be undertaken as the most pleasant and profitable of all the rest, wherein should be described the whole processe of manual operations and applications of one naturall thing (which we call the elements of artificials) to another, with the necessarie instruments and machines, whereby every peice of work is elaborated, and made to be what it is, unto which work bare words being not sufficient, all instruments and tooles must be pictured, and colours added when the descriptions can not be made intelligible without them. This history must not be made out of a farrago of imperfect relations made to the compiler, either by too rude or cousening workmen, but all things thereunto appertaining must be by himselfe observed and attested by the most judicious and candid of each respective profession, as well to make the work the more authentick, (it being to be the basis of many future inferences and philosophations) as the more clearly and distinctly to enforme the compiler himself, by whose judgement as the Alembick and industry as the fire, it is hoped that the quintessence and magisteries of all present inventions may be extracted, and new ones produced in abundance. Although it be intended to teach the making of all artificials, yet it is not to be understood that when there hath beene taught how to make a stoole, or a nail of one fashion, that the art of making a chaire or a nail of another fashion, should be long insisted on. But the compiler should strive to reduce the making of all artificials in each trade to a certain number and classes of operations tooles and materials, neither need he to set the figures, or mention the name of all artificials that ever were made, but onely of such as are most knowne and of common use amongst men: he needeth not to describe every punctilie in making all the aforementioned particulars, and yet leave no more defects, then may be supplied by every common understanding. For we question whether (if he should engage himselfe in such an endlesse labour) a man by the bare light and instruction of a book could attaine to a dextrous practice of a trade,

whereunto hath been required seven yeares Autopsia. But are confident that the help of this book will lessen the former tedium by more than half. He should not so abridge the work as not to distinguish between instruments of the same name, as between a loom to weave kerseys, and another, wherein to weave silk ribbands or stockings. He should all along give the mechanickall reason of every instrument materiall and operation, when the same is sensible and cleere. He should all along note his own defects in setting down these histories, in case he had not at the time of the writing thereof sufficient information, and withall the deficiencies of the trades themselves.

Now whereas there be divers wayes and methods of working most manufactures, he should in each thing stick close to the way of some one Mr.; but note all the diversities he knoweth, and give his opinion of the use and goodnes of each.

Moreover the oeconomy, *Sive Ars. angendas rei familiaris*, in all professions ought to be inquired into, viz., what seasons of the yeare are most proper to each worke, which the best places and times to buy materials, and to put off the commodities when finished, how most thriftily to hire, entertaine, and oversee servants and workmen, how to dispose of every excrement and refuse of material, or of broken, worn, or otherwise unserviceable tooles and utensils, with all cauteles, impostures and other sleights good or bad, whereby men use to over-reach one another.

There ought to be added to this work many and various indices besides the alphabetical ones, as namely one of all the artificials mentioned in the whole worke. Another of all the naturall materials or elements of artificials, by what artificers used, from whence they come, where to be had, and what are the ordinary and middle prices of them.

Another of all the qualities or schemes of matter, as of all liquifiable things vicia friable, heavy, transparent, abstersive, or otherwise qualified according to all the classes of 1, 2, and 3, qualities, to the end that materials for all intentions and experiments may be at hand and in sight.

Another of all operations mentioned in the whole work, as sawing, hewing, filing, boring, melting, dissolving, turning, beating, grinding, boyling, calcining, knitting, spinning, sowing, twisting, &c. To the end that they all may also be at hand for the purposes aforesaid.

Another of all tooles and machines, as files, sawes, chissels, sheeres, sives, loomes, shuttles, wheels, wedges, knives, skrewes, &c., for the same purpose also.

The compiler ought to publish all his conjectures, how old inventions may be perfected, and new ones produced, giving directions how to try the truth of them. So that by all those unto whose hands these books shall come perchance, all the said suppositions may be tryed, and the successes reported to the compiler himselfe.

The compilers first scope in inventions shall bee, how to apply all materials that grow in abundance in this kingdome, and whereof but in considerable use and profits are as yet made to more advantage to the common wealth. And also how all impotents whether onely blind, or onely lame, and all children of above seven yeares old might earne their bread, and not be so long burdensome to their parents and others. There should be made a preface to the worke to teach men how to make the most of experiments and to record the successes of them whatsoever, whether according to hopes or no, all being equally luciferous, although not equally luciferous. There ought to be much artifice used, that all

the aforementioned indices may handsomely referre one to another, that all things contained in the whole book may be most easily found, and most readily attend the seekers of new inventions. The way to accomplish this worke must be to enquire what to this purpose is already done, or in hand, in all places and also by whom, so that communication of counsels and proceedings, may (if possible) be had with those undertakers. All bookes of this subject already extant in print, must be collected and bought, not to transcribe them, but to examine them per autopsiam, and re-experiment the experiments contained in them, and withall to give hints of new enquiries.

The compiler must be content to devote his whole life to this employment, one who (as we said before) hath the fire of industry and the alembick of a curious and rationall head, to extract the quintessence of whatsoever he seeth. He should bee as young as sufficient abilities will admit, to the end that he may with the concurrence of God's ordinary providence, either finish, or very farre advance the work, while he liveth, and also that living long in that employment, he may heap up the larger stock of experiments, which how much the greater it is in one man, affordeth so much the more the hopes of new inventions.

The nature, manner, and meanes of writing the History of Trades being so farre expounded, before we proceed furthur therein, for the better encouragement of undertakers. We shall now represent such profits and commodities thereof, to the commonwealth, as we at present more nearly reflect upon. For to enumerate or evaluate them all, will be much above our capacity.

1. All men whatsoever may hereby so look into all professions, as not to be too grossely cozened and abused in them.

2. The mysteries of trades being so laid open, as that the professors of them can not make so unlawful and exorbitant advantages as heretofore, such as are cunning and ambitious will never rest untill they have found new ones in their stead; so that the *Respublica Artium*, will be so much the more advanced.

3. Schollers and such as love to ratiocinate will have more and better matter to exercise their wits upon, whereas now they puale and tire themselves, about meer words and chymericall notions.

4. They will reason with more alacrity, when they shall not onely yet honour by shewing their abilities, but profit likewise by the invention of *Fructiferous Arts*.

5. Sophistry shall not be in such esteem as heretofore, when even sence shall be able to unmask its vanity, and distinguish it from truth.

6. Men seeing what arts are already invented, shall not need to puale themselves to reinvent the same again.

7. All men in general that have wherewithall will be venturing at our '*Vellus Aureum*,' by making of experiments: and whether thereby they thrive or no (the directions in the preface being followed) they shall nevertheless more and more discover nature.

8. Nay, all nations sensible of this '*Auri Sacra fames*,' will engage in this hopefull businesse; and then certainly many hands will make light work in the said businesse of discovering nature.

9. All ingenious men and lovers of reall knowledge, have a long time ogged this work, wherefore it can be no small honor to him that shall satisfie them.

10. A vast increase of honorable, profitable, and pleasant inventions must needs spring from this work, when one man (as the compiler thereof) may 'uno

intuita,' see and comprehend all the labor and wit of our ancestors, and be thereby able to supply the defects of one trade with the perfections of another.

11. We see that all countries where manufactures and trades flourish, as Holland, &c., become potent and rich. For how can it be otherwise? When the revenues of the state shall be increased by new and more customs, all beggars feeding upon the labours of other men, and even thieves and robbers (made for want of better employment) shall be set on work, barren grounds made fruitful, wet dry, and dry wet, when even hogs and more indocile beasts shall be taught to labour. When all vile materials shall be turned to noble uses, when one man or horse shall do as much as three, and every thing improved to strange advantages.

12. There would not then be so many *fustian* and unworthy preachers in divinity; so many Petti-foggers in the law; so many quack-salvers in physick; so many grammaticasters in country schooles, and so many lazy serving-men in gentlemen's houses, when every man might learn to live otherwise in plenty and honour. For all men desirous to take paines, might by this book survey all the wayes of subsistance, and choose out of them all, one that best suits with his genius and abilities.

13. Schollers now disesteemed for their poverty, (what ever other thing commands them) and unable even for want of lively-hood, to perfect anything even in their own way, would quickly help themselves by opening treasures, with the key of lucriforous inventions.

14. Boyes instead of reading hard Hebrew words in the Bible (where they either trample on, or play with mysteries) or parrot-like repeating heteroclitous nouns and verbs, might read, and hear the History of Faculties expounded, so that before they be bound apprentices to any trade, they may foreknow the good and bad of it, what will and strength they have to it, and not spend seven years in repenting, and in swimming against the stream of their inclinations.

All apprentices by this book might learn the theory of their trades before they are bound to a master, and consequently may be exempted from the 'Tedium' of a seven years bondage, and having spent but about three years with a master, may spend the other four in travelling to learn breeding, and the perfection of their trades. As it would be more profitable to boyes, to spend ten or twelve years in the study of things, and of this book of faculties, then in a rabble of words, so it would be more easie and pleasant to them as more suitable to the natural propensions we observe in them. For we see children do delight in drums, pipes, fiddels, guns made of elder sticks, and bellows' noses, piped keys, &c., for painting flags and ensignes with elder-berries and corn poppy, making ships with paper, and setting even nut-shells a swimming, handling the tooles of workemen as soone as they tune their backs, and trying to work themselves, fishing, fowling, hunting, setting sprengees, and traps for birds, and other animals, making pictures in their writing bookes, making tops, gigs, and whirling-gigs, guilting balls, practicing divers juggling tricks upon the cards, &c., with a million more besides. And for the females, they will be making pies with clay, making their babies clothes, and dressing them therewith, they will spit leaves on sticks, as if they were roasting meate, they will imitate all the talke and actions which they observe in their mother, and her gossips, and punctually act the comedy or tragedy (I know not whether to call it) of a woman's lying-in. By all which it is most evident, that children do most naturally delight in things, and are most capable of learning them, having quick senses to receive them,

and unpreoccupied memories to retain them. As for other things whereunto they are nowadays fit, they are altogether unfit for want of judgement, which is but weak in them, and also for want of will, which is sufficiently seene both by what we have said before, by the difficultie of keeping them at schools, and the punishment they will endure rather than be altogether debarred from this pleasure which they take in things.

This work will be a help to eloquence, when men by their great acquaintance with things, might find out similitudes, metaphors, allusions, and other graces of discourse in abundance.

To arithmeticians and geometricians, supplying them with matter whereupon to exercise those most excellent sciences, which some having with much paines once learned, do for want hereof forget againe, or unprofitably apply about resolving needless questions and making of new difficulties. The number of mix mathematical arts would hereby be increased.

For we see that opticks are made up of pure mathematicks, the anatomy of the eye, and some physicall principles concerning the nature of light and vision, with some experiments of convex and concave glasses. Astronomy is constituted againe of them, and some celestiall phenomena. Enquire againe of them, and some propositions, 'de Cochleâ et Vecte.' And so certainly as the number of axioms concerning severall subjects doth increase by this work. So the number of (their applications to pure mathematicks, id est,) new mathematicall arts, will increase also. Divines having so large a booke of God's works added to that of his word, may the more clearly from them both, deduce the wisdom, power, and goodnesse of the Almighty. Physicians observing the use of all drugs and operations in the production of artificials, may with successe transerre them to better uses in their art. And lawyers when they plead concerning trades and manufactures, would better know what to say on such occasions.

A young beginner may know by this book how much stock is needfull to set him up in trade. Gentlemen falling sometimes accidentally into tradesmen and handi-crafts company, would know how to make use of such occurrences to advantage.

Lastly,—This History with the comments thereupon, and the Indices, Preface and Supplements thereunto belonging, would make us able (if it be at all possible) to demonstrate Axioms in Philosophy, the value and dignity whereof can not be valued or computed.

The next book which we recommend is the History of Nature free, for indeed the History of Trades is also a History of Nature, but of nature vexed and disturbed. What we meane by this history may be known by the Lord Verulam's most excellent specimen thereof, and as for the particulars that it should treat on, we referre to his exact and judicious catalogue of them, at the end of his "Advancement of Learning."

PLAN OF A PHILOSOPHICAL COLLEGE.

A PROPOSITION FOR THE ADVANCEMENT OF EXPERIMENTAL PHILOSOPHY—1661.

BY ABRAHAM COWLEY.

THE COLLEGE.

THAT the Philosophical College be situated within one, two, or (at farthest) three miles of London, and if it be possible to find that convenience, upon the side of the river, or very near it.

That the revenue of this College amount to four thousand a year.

That the company received into it be as follows:—

1. Twenty philosophers or professors. 2. Sixteen young scholars, servants to the professors. 3. A chaplain. 4. A bailee for the revenue. 5. A manciple or purveyor for the provisions of the house. 6. Two gardeners. 7. A master cook. 8. An under cook. 9. A butler. 10. An under butler. 11. A surgeon. 12. Two lungs, or chemical servants. 13. A library-keeper, who is likewise to be apothecary, druggist, and keeper of instruments, engines, &c. 14. An officer to feed and take care of all beasts, fowl, &c., kept by the College. 15. A groom of the stable. 16. A messenger to send up and down for all uses of the College. 17. Four old women to tend the chambers, keep the house clean, and such like services.

That the annual allowance for this company be as follows:—

1. To every professor, and to the chaplain, one hundred and twenty pounds. 2. To the sixteen scholars, twenty pounds a piece, ten pounds for their diet, and ten pounds for their entertainment. 3. To the bailee, thirty pounds, besides allowance for his journeys. 4. To the purveyor or manciple, thirty pounds. 5. To each of the gardeners, twenty pounds. 6. To the master cook, twenty pounds. 7. To the under cook, four pounds. 8. To the butler, ten pounds. 9. To the under butler, four pounds. 10. To the surgeon, thirty pounds. 11. To the library-keeper, thirty pounds. 12. To each of the lungs, twelve pounds. 13. To the keeper of the beasts, six pounds. 14. To the groom, five pounds. 15. To the messenger, twelve pounds. 16. To the four necessary women, ten pounds. For the manciple's table, at which all the servants of the house are to eat, except the scholars, one hundred and sixty pounds. For three horses for the service of the College, thirty pounds.

All which amounts to three thousand two hundred and eighty-five pounds. So that there remains for keeping of the house and gardens, and operatories, and instruments and animals, and experiments of all sorts, and all other expenses, seven hundred and fifteen pounds. Which were a very inconsiderable sum for the great uses to which it is designed, but that I conceive the industry of the College will in a short time so enrich itself as to get a far better stock for the advance and enlargement of the work when it is once begun; neither is the continuance of particular men's liberality to be despaired of,

when it shall be encouraged by the sight of that public benefit which will accrue to all mankind, and chiefly to our nation, by this foundation. Something likewise will arise from leases and other casualties; that nothing of which may be diverted to the private gain of the professors, or any other use besides that of the search of nature, and by it the general good of the world, and that care may be taken for the certain performance of all things ordained by the institution, as likewise for the protection and encouragement of the company, it is proposed,

That some person of eminent quality, a lover of solid learning, and no stranger in it, be chosen Chancellor or President of the College, and that eight governors more, men qualified in the like manner, be joined with him, two of which shall yearly be appointed Visitors of the College, and receive an exact account of all expenses even to the smallest, and of the true estate of their public treasure, under the hands and oaths of the professors resident.

That the choice of the professors in any vacancy belong to the Chancellor and the Governors, but that the professors (who are likeliest to know what men of the nation are most proper for the duties of their society) direct their choice by recommending two or three persons to them at every election. And that if any learned person within his majesty's dominions discover or eminently improve any useful kind of knowledge, he may upon that ground for his reward and the encouragement of others, be preferred, if he pretend to the place, before anybody else.

That the Governors have power to turn out any professor who shall be proved to be either scandalous or unprofitable to the Society.

That the College be built after this, or some such manner: That it consist of three fair quadrangular courts, and three large grounds, inclosed with good walls behind them. That the first court be built with a fair cloister, and the professors' lodgings or rather little houses, four on each side, at some distance from one another, and with little gardens behind them, just after the manner of the *Chartreux* beyond sea. That the inside of the cloister be lined with a gravel walk, and that walk with a row of trees, and that in the middle there be a *parterre* of flowers, and a fountain.

That the second quadrangle, just behind the first, be so contrived as to contain these parts: 1. A chapel. 2. A hall with two long tables on each side for the scholars and officers of the house to eat at, and with a pulpit and forms at the end for the public lectures. 3. A large and pleasant dining-room within the hall for the professors to eat in, and to hold their assemblies and conferences. 4. A public school-house. 5. A library. 6. A gallery to walk in, adorned with the pictures or statues of all the inventors of any thing useful to human life, as printing, guns, America, &c., and of late in anatomy the circulation of the blood, the milky veins, and such like discoveries in any art, with short eulogies under the portraitures; as likewise the figures of all sorts of creatures, and the stuffed skins of as many strange animals as can be gotten. 7. An anatomy chamber adorned with skeletons and anatomical pictures, and prepared with all conveniences for dissection. 8. A chamber for all manner of drugs and apothecaries' materials. 9. A mathematical chamber furnished with all sorts of mathematical instruments, being an appendix to the library. 10. Lodgings for the chaplain, surgeon, library-keeper and purveyor, near the chapel, anatomy chamber, library, and hall.

That the third court be on one side of these, very large, but meanly built, being designed only for use and not for beauty too, as the others. That it contain the kitchen, buteries, brewhouse, bakehouse, dairy, lardry, stables, &c., and especially great laboratories for chemical operations, and lodgings for the under servants.

That behind the second court be placed the garden, containing all sorts of plants that our soil will bear, and at the end a little house of pleasure, a lodge for the gardener, and a grove of trees cut into walks.

That the second inclosed ground be a garden, destined only to the trial of all manner of experiments concerning plants, as their melioration, acceleration, retardation, conservation, composition, transmutation, coloration, or whatsoever else can be produced by art, either for use or curiosity, with a lodge in it for the gardener.

That the third ground be employed in convenient receptacles for all sorts of creatures which the professors shall judge necessary for their more exact search into the nature of animals, and the improvement of their uses to us.

That there be likewise built in some place of the College where it may serve most for ornament of the whole, a very high tower for observation of celestial bodies, adorned with all sorts of dials, and such like curiosities; and that there be very deep vaults, made under ground, for experiments most proper to such places, which will be undoubtedly very many.

Much might be added, but truly I am afraid this is too much already for the charity or generosity of this age to extend to; and we do not design this after the model of Solomon's house in my Lord Bacon, (which is a project for experiments that can never be experimented,) but propose it within such bounds of expense as have often been exceeded by the buildings of private citizens.

PROFESSORS, SCHOLARS, CHAPLAIN, AND OTHER OFFICERS.

That of the twenty professors, four be always travelling beyond seas, and sixteen always resident, unless by permission upon extraordinary occasions, and every one so absent, leaving a deputy behind him to supply his duties.

That the four professors itinerate be assigned to the four parts of the world—Europe, Asia, Africa, and America—there to reside three years at least, and to give a constant account of all things that belong to the learning, and especially, natural experimental philosophy of those parts.

That the expense of all dispatches, and all books, simples, animals, stones, metals, minerals, &c., and all curiosities whatsoever, natural or artificial, sent by them to the college, shall be defrayed out of the treasury, and an additional allowance (above the 120*l*.) made to them as soon as the college revenue shall be improved.

That at their going abroad they shall take a solemn oath never to write anything to the College, but what, after very diligent examination, they shall fully believe to be true, and to confess and recant it as soon as they find themselves in an error.

That the sixteen professors resident shall be bound to study and teach all sorts of natural, experimental philosophy, to consist of the mathematics, mechanica, medicine, anatomy, chemistry, the history of animals, plants, minerals, elements, &c., agriculture, architecture, art military, navigation, gardening; the mysteries of all trades, and improvement of them; the facture of all merchan-

dices, all natural magic, or divination; and briefly, all things contained in the catalogue of natural histories annexed to my Lord Bacon's *Organon*.

That once a day from Easter till Michaelmas, and twice a week from Michaelmas to Easter, in the hours in the afternoon most convenient for auditors from London according to the time of the year, there shall be a lecture read in the hall, upon such parts of natural experimental philosophy as the professors shall agree on among themselves, and as each of them shall be able to perform usefully and honorably.

That two of the professors by daily, weekly or monthly turns shall teach the public schools according to the rules hereafter prescribed.

That all the professors shall be equal in all respects (except precedency, choice of lodging, and such like privileges, which shall belong to seniority in the College,) and that all shall be masters and treasurers by annual turns, which two officers for the time being, shall take place of all the rest, and shall be *Arbitri duarum Mensarum*.

That the master shall command all the officers of the College, appoint assemblies or conferences upon occasion, and preside in them with a double voice, and in his absence the treasurer, whose business is to receive and disburse all moneys by the master's order in writing, (if it be an extraordinary,) after consent of the other professors.

That all the professors shall sup together in the parlor within the hall every night, and shall dine there twice a week (to wit Sundays and Thursdays,) at two round tables for the convenience of discourse, which shall be for the most part of such matters as may improve their studies and professions, and to keep them from falling into loose or unprofitable talk, shall be the duty of the two *Arbitri Mensarum*, who may likewise command any of the servant-scholars to read them what they shall think fit, whilst they are at table; that it shall belong likewise to the said *Arbitri Mensarum* only, to invite strangers, which they shall rarely do, unless they be men of learning or great parts, and shall not invite above two at a time to one table, nothing being more vain and unfruitful than numerous meetings of acquaintance.

That the professors resident shall allow the College twenty pounds a year for their diet, whether they continue there all the time or not.

That they shall have once a week an assembly or conference concerning the affairs of the College, and the progress of their experimental philosophy.

That if any one find out any thing which he conceives to be of consequence, he shall communicate it to the assembly to be examined, experimented, approved, or rejected.

That if any one be author of an invention that may bring in profit, the third part of it shall belong to the inventor, and the two other to the Society; and besides, if the thing be very considerable, his statue or picture, with an eulogy under it, shall be placed in the gallery, and made a denizen of that corporation of famous men.

That all the professors shall be always assigned to some particular inquiry (besides the ordinary course of their studies,) of which they shall give an account to the assembly, so that by this means there may be every day some operation or other made in all the arts, as chemistry, anatomy, mechanics, and the like, and that the College shall furnish for the charge of the operation.

That there shall be kept a register under lock and key, and not to be seen

but by the professors, of all the experiments that succeed, signed by the persons who made the trial.

That the popular and received errors in experimental philosophy (with which, like weeds in a neglected garden, it is now almost all overgrown,) shall be evinced by trial, and taken notice of in the public lectures, that they may no longer abuse the credulous, and beget new ones by consequence or similitude.

That every third year (after the full settlement of the foundation,) the College shall give an account in print, in proper and ancient Latin, of the fruits of their triennial industry.

That every professor resident shall have his scholar to wait upon him in his chamber, and at table, whom he shall be obliged to breed up in natural philosophy, and render an account of his progress to the assembly, from whose election he received him, and therefore is responsible to it, both for the care of his education, and the just and civil usage of him.

That the scholar shall understand Latin very well, and be moderately initiated in the Greek, before he be capable of being chosen into the service, and that he shall not remain in it above seven years.

That his lodging shall be with the professor whom he serves.

That no professor shall be a married man, or a divine, or lawyer in practice, only physic he may be allowed to prescribe, because the study of that art is a great part of the duty of his place, and the duty of that is so great that it will not suffer him to lose much time in mercenary practice.

That the professors shall in the College wear the habit of ordinary masters of art in the universities, or of doctors, if any of them be so.

That they shall all keep an inviolable and exemplary friendship with one another, and that the assembly shall lay a considerable pecuniary mulct upon any one who shall be proved to have entered so far into a quarrel as to give uncivil language to his brother professor; and that the perseverance in any enmity shall be punished by the Governors with expulsion.

That the chaplain shall eat at the master's table, (paying his twenty pounds a year as the others do,) and that he shall read prayers once a day at least, a little before supper-time; that he shall preach in the chapel every Sunday morning, and catechise in the afternoon the scholars and the school-boy; that he shall every month administer the Holy Sacrament; that he shall not trouble himself and his auditors with the controversies of divinity, but only teach God in his just commandments, and in his wonderful works.

THE SCHOOL.

That the school may be built so as to contain about two hundred boys.

That it be divided into four classes, not as others are ordinarily into six or seven, because we suppose that the children sent hither to be initiated in things as well as words, ought to have past the two or three first, and to have attained the age of about thirteen years, being already well advanced in the Latin grammar and some authors.

That none, though never so rich, shall pay any thing for their teaching; and that if any professor shall be convicted to have taken any money in consideration of his pains at the school, he shall be expelled with ignominy by the Governors; but if any persons of great estate and quality, finding their sons much better proficients in learning here than boys of the same age commonly

are at other schools, shall not think fit to receive an obligation of so near concernment without returning some marks of acknowledgment, they may, if they please, (for nothing is to be demanded,) bestow some little rarity or curiosity upon the Society in recompense of their trouble.

And because it is deplorable to consider the loss which children make of their time at most schools, employing or rather casting away six or seven years in the learning of words only, and that too very imperfectly:

That a method be here established for the infusing knowledge and language at the same time into them; and that this may be their apprenticeship in natural philosophy. This we conceive may be done, by breeding them in authors or pieces of authors, who treat of some parts of nature, and who may be understood with as much ease and pleasure as those which are commonly taught; such are in Latin, *Varro, Cato, Columella, Pliny*, part of *Celsus*, and of *Seneca, Cicero de Divinatione, de Natura Deorum*, and several scattered pieces, *Virgil's Georgics, Grotius, Nemesianus, Manilius*; and because the truth is, we want good poets (I mean we have but few) who have purposely treated of solid and learned, that is, natural matters, (the most part indulging to the weakness of the world, and feeding it either with the follies of love, or with the fables of gods and heroes,) we conceive that one book ought to be compiled of all the scattered little parcels among the ancient poets that might serve for the advancement of natural sciences, and which would make no small or unusual or unpleasant volume. To this we would have added the *Morals and Rhetorics of Cicero*, and the *Institutions of Quintilian*; and for the comedians, from whom almost all that necessary part of common discourse and all the most intimate proprieties of the language are drawn, we conceive the boys made be made masters of them, as a part of their recreation and not of their task, if once a month, or at least once in two, they act one of *Terence's comedies*, and afterwards (the most advanced) some of *Plautus*'; and this is for many reasons one of the best exercises they can be enjoined, and most innocent pleasures they can be allowed. As for the Greek authors, they may study *Nicander, Oppianus*, (whom Scaliger does not doubt to prefer above *Homer* himself, and place next to his adored *Virgil*.) *Aristotle's History of Animals*, and other parts; *Theophrastus* and *Dioscorides*, of *Plants*, and a collection made out of several, both poets and other Grecian writers. For *morals and rhetoric, Aristotle* may suffice, or *Hermogenes* and *Longinus* be added for the latter. With the history of animals they should be showed anatomy as a divertisement, and made to know the figures and natures of those creatures which are not common among us, disabusing them at the same time of those errors which are universally admitted concerning many. The same method should be used to make them acquainted with all plants; and to this must be added a little of the ancient and modern geography, the understanding of the globes, and the principles of geometry and astronomy. They should likewise use to declaim in Latin and English, as the Romans did in Greek and Latin; and in all this travel be rather led on by familiarity, encouragement and emulation, than driven by severity, punishment and terror. Upon festivals and playtimes they should exercise themselves in the fields by riding, leaping, fencing, mustering and training after the manner of soldiers, &c. And to prevent all dangers and all disorder, there should always be two of the scholars with them to be as witnesses and directors of their actions. In foul weather it would not be amiss for them to learn to dance, that is, to learn just so much (for all

beyond is superfluous, if not worse,) as may give them a graceful comportment of their bodies.

Upon Sundays, and all days of devotion, they are to be a part of the chaplain's province.

That for all these ends the College so order it, as that there may be some convenient and pleasant houses thereabouts, kept by religious, discreet, and careful persons, for the lodging and boarding of young scholars, that they have a constant eye over them to see that they be bred up there piously, cleanly, and plentifully, according to the proportion of their parents' expenses.

And that the College, when it shall please God either by their own industry and success, or by the benevolence of patrons, to enrich them so far as that it may come to their turn and duty to be charitable to others, shall at their own charges erect and maintain some house or houses for the entertainment of such poor men's sons whose good natural parts may promise either use or ornament to the commonwealth, during the time of their abode at school, and shall take care that it shall be done with the same conveniences as are enjoyed even by rich men's children, (though they maintain the fewer for that cause,) there being nothing eminent and illustrious to be expected from a low, sordid, and hospital-like education.

CONCLUSION.

If I be not much abused by a natural fondness to my own conceptions, (that *εὖ* of the Greeks, which no other language has a proper word for,) there was never any project thought upon, which deserves to meet with so few adversaries as this; for who can without impudent folly oppose the establishment of twenty well selected persons in such a condition of life, that their whole business and sole profession may be to study the improvement and advantage of all other professions, from that of the highest general even to the lowest artisan? Who shall be obliged to employ their whole time, wit, learning, and industry, to these four, the most useful that can be imagined, and to no other ends: First, to weigh, examine, and prove all things of nature delivered to us by former ages, to detect, explode, and strike a censure through all false moneys with which the world has been paid and cheated so long, and (as I may say) to set the mark of the College upon all true coins, that they may pass hereafter without any farther trial. Secondly, to recover the lost inventions, and, as it were, drowned lands of the ancients. Thirdly, to improve all arts which we now have; and lastly, to discover others, which we yet have not. And who shall besides all this (as a benefit by-the-by) give the best education in the world (purely gratis) to as many men's children as shall think fit to make use of the obligation. Neither does it at all check or interfere with any parties in state or religion, but is indifferently to be embraced by all differences in opinion, and can hardly be conceived capable (as many good institutions have done) even of degeneration into any thing harmful. So that, all things considered, I will suppose this proposition will encounter with no enemies; the only question is, whether it will find friends enough to carry it on from discourse and design to reality and effect; the necessary expenses of the beginning (for it will maintain itself well enough afterwards) being so great (though I have set them as low as is possible in order to so vast a work) that it may seem hopeless to raise such a sum out of those few dead relics of human charity and public generosity which are yet remaining in the world.

EXTRACTS FROM AN ESSAY ON AGRICULTURE, BY A. COWLEY.

There is no other sort of life that affords so many branches of praise to a panegyrist—the utility of it to a man's self: the usefulness or rather necessity of it to all the rest of mankind: the innocence, the pleasure, the antiquity, the dignity. The utility (I mean plainly the lucre of it) is not so great now in our nation as arises from merchandise and the trading of the city, from whence many of the best estates and chief honors of the kingdom are derived: we have no men now fetched from the plow to be made lords, as they were in Rome to be made consuls and dictators, the reason of which I conceive to be from an evil custom, now grown as strong among us as if it were a law, which is, that no men put their children to be bred up apprentices in agriculture, as in other trades, but such who are so poor, that when they come to be men, they have not wherewithal to set up in it, and so can only farm some small parcel of ground, the rent of which devours all but the bare subsistence of the tenant: whilst they who are proprietors of the land, are either too proud, or for want of that kind of education, too ignorant to improve their estates, though the means of doing it be as easy and certain in this as in any other track of commerce. If there were always two or three thousand youths for seven or eight years bound to this profession, that they might learn the whole art of it, and afterwards be enabled to be masters in it, by a moderate stock, I can not doubt but that we should see as many aldermen's estates made in the country, as now we do out of all kind of merchandising in the city. There are as many ways to be rich, and which is better, there is no possibility to be poor, without such negligence as can neither have excuse nor pity; for a little ground will without question feed a little family, and the superfluities of life (which are now in some cases by custom made almost necessary) must be supplied out of the superabundance of art and industry, or condemned by as great a degree of philosophy.

As for the necessity of this art, it is evident enough, since this can live without all others, and no one other without this. This is like speech, without which the society of men can not be preserved: the others like figures and tropes of speech which serve only to adorn it. Many nations have lived, and some do still, without any art but this; not so elegantly, I confess, but still they live, and almost all the other arts which are here practiced, are beholding to this for most of their materials.

The innocence of this life is the next thing for which I commend it, and if husbandmen preserve not that, they are much to blame, for no men are so free from the temptations of iniquity. They live by what they can get by industry from the earth, and others by what they can catch by craft from men. They live upon an estate given them by their mother, and others upon an estate cheated from their brethren. They live like sheep and kine by the allowances of nature, and others like wolves and foxes by the acquisitions of rapine. And, I hope, I may affirm (without any offense to the great) that sheep and kine are very useful, and that wolves and foxes are pernicious creatures. They are, without dispute, of all men the most quiet and least apt to be inflamed to the disturbance of the commonwealth: their manner of life inclines them, and interest binds them to love peace. In our late mad and miserable civil wars, all other trades, even to the meanest, set forth whole troops, and raised up some great commanders, who became famous and mighty for the mischiefs they

had done; but I do not remember the name of any one husbandman who had so considerable a share in the twenty years' ruin of his country, as to deserve the curses of his countrymen; and if great delights be joined with so much innocence, I think it is ill done of men not to take them here where they are so tame and ready at hand, rather than hunt for them in courts and cities where they are so wild, and the chase so troublesome and dangerous.

We are here among the vast and noble scenes of nature; we are there among the pitiful shifts of policy: we walk here in the light and open ways of the divine bounty; we grope there in the dark and confused labyrinths of human malice: our senses are here feasted with the clear and genuine taste of their objects; which are all sophisticated there, and for the most part overwhelmed with their contraries. Here pleasure looks (methinks) like a beautiful, constant, and modest wife; it is there an impudent, fickle, and painted harlot. Here is harmless and cheap plenty, there guilty and expensive luxury.

I shall only instance in one delight more, the most natural and best natured of all others, a perpetual companion of the husbandman, and that is the satisfaction of looking round about him, and seeing nothing but the effects and improvements of his own art and diligence, to be always gathering of some fruits of it, and at the same time to behold others ripening, and others budding; to see all his fields and gardens covered with the beauteous creatures of his own industry; and to see, like God, that all his works are good.

———*Hinc atque hinc glomerantur Orcae; ipsi
Agricola tacitum pertinant gaudia pectus.*

On his heart-string a secret joy does strike.

The antiquity of his art is certainly not to be contested by any other. The three first men in the world were a gardener, a ploughman, and a grazier; and if any man object that the second of these was a murderer, I desire he would consider, that as soon as he was so, he quitted our profession and turned builder. It is for this reason, I suppose, that *Ecclesiasticus* forbids us to hate husbandry; because (says he) *the Most High has created it*. We were all born to this art, and taught by nature to nourish our bodies by the same earth out of which they were made, and to which they must return, and pay at last for their sustenance.

Behold the original and primitive nobility of all those great persons, who are too proud now, not only to till the ground, but almost to tread upon it. We may talk what we please of lilies, and lions rampant, and spread eagles in fields *d'or*, or *d'argent*; but if heraldry were guided by reason, a plough in a field arable would be the most noble and ancient arms.

All these considerations make me fall into the wonder and complaint of *Columella*. How it should come to pass that all arts or sciences, (for the dispute, which is an art, and which a science, does not belong to the curiosity of us husbandmen,) metaphysics, physick, morality, mathematics, logic, rhetoric, &c., which are all, I grant; good and useful faculties, (except only metaphysics, which I do not know whether it be any thing or no,) but even vaulting, fencing, dancing, attiring, cookery, carving, and such like vanities, should all have public schools and masters, and yet that we should never see or hear of any man who took upon him the profession of teaching this so pleasant, so virtuous, so profitable, so honorable, so necessary, art.

A man would think, when he's in serious humor, that it were but a vain,

irrational and ridiculous thing, for a great company of men and women to run up and down in a room together, in a hundred several postures and figures to no purpose, and with no design; and therefore dancing was invented first, and practiced anciently in the ceremonies of the heathen religion, which consisted all in mummery and madness; the latter being the chief glory of the worship, and accounted divine inspiration. This, I say, a severe man would think, though I dare not determine so far against so customary a part now of good breeding. And yet, who is there among our gentry, that does not entertain a dancing-master for his children as soon as they are able to walk? But did ever any father provide a tutor for his son, to instruct him betimes in the nature and improvements of that land which he intended to leave him? That is at least a superfluity, and this a defect in our manner of education; and therefore I could wish (but can not in these times much hope to see it) that one College in each University were erected and appropriated to this study, as well as there are to medicine and the civil law. There would be no need of making a body of scholars and fellows, with certain endowments, as in other colleges; it would suffice, if after the manner of halls in Oxford, there were only four professors constituted, (for it would be too much work for only one master, or principal, as they call him there) to teach these four parts of it. First, aration, and all things relating to it. Secondly, pasturage. Thirdly, gardens, orchards, vineyards, and woods. Fourthly, all parts of rural economy, which would contain the government of bees, swine, poultry, decoys, ponds, &c., and all that which *Varro* calls *Villaticas Pastiones*, together with the sports of the field (which ought to be looked upon not only as pleasures, but as parts of housekeeping) and the domestic conservation and uses of all that is brought in by industry abroad. The business of these professors should not be, as is commonly practiced in other arts, only to read pompous and superficial lectures out of *Virgil's Georgics*, *Pliny*, *Varro*, or *Columella*, but to instruct their pupils in the whole method and course of this study, which might be run through perhaps with diligence in a year or two; and the continual succession of scholars, upon a moderate taxation for their diet, lodging and learning, would be a sufficient constant revenue for maintenance of the house and the professors, who should be men not chosen for the ostentation of critical literature, but for solid and experimental knowledge of the things they teach such men; so industrious and public-spirited as I conceive Mr. Hartlib to be, if the gentleman be yet alive; but it is needless to speak farther of my thoughts of this design, unless the present disposition of the age allowed more probability of bringing it into execution.

PLAN OF A TECHNICAL UNIVERSITY.

BY J. SCOTT RUSSELL.

Under the title of Systematic Technical Education for the English People, J. Scott Russell, a civil engineer of large experience, and wide observation of the results, both of deficient and thorough professional training in the designing, construction, and superintendence of great public works, and private manufacturing and mechanical establishments, has developed an elaborate scheme of special training for the different occupations demanded by the exigencies of modern society in England. These diverse trainings—the subjects and methods he has distributed into different schools, and then grouped into an institution which he calls the English Technical University. We have elsewhere copied his illustration of such a system, and of such institutions, drawn from the experience of Wurtemberg and Switzerland. We here bring together a condensed statement of the classes and schools for which he would provide.

Classes for whom Systematic Education and Training is necessary.

CLASS I.

1. The Statesman. 2. The Soldier and Sailor. 3. The Theologian. 4. The Lawyer. 5. The Doctor.

(The first, third, fourth and fifth of these are provided by the Universities, and the second by the military schools.)

CLASS II.

6. The Agriculturist. 7. The Miner. 8. The Metallurgist. 9. The Manufacturer. 10. The Civil Engineer. 11. The Mechanical Engineer. 12. The Machinist. 13. The Architect. 14. The Naval Architect. 15. The Merchant. 16. The Ship-owner. 17. The Merchant Sailor. 18. The Practical Chemist. 19. The Astronomer. 20. The Marine Engineer. 21. The Surveyor.

(Some of these are provided for by Government in the Royal School of Mines and of Naval Architecture, which might form portions of the future systematic course of education.)

CLASS III.

22. The Professor of Pure Science. 23. The Professor of Literature. 24. The Professor of Fine Arts. 25. The Teacher or Schoolmaster. 26. The Political Economist.

(Some of these are imperfectly provided for in schools and universities.)

We omit Mr. Russell's classification of the Sciences and give his grouping of these Sciences with their practical applications, and work, into schools.

ENGLISH TECHNICAL UNIVERSITY.

When we have provided in our university fifty-six courses of study, covering the wide fields of education in matter and mind, it is quite obvious that we have merely embarrassed the youthful student by the number and variety of the subjects from which he has to select; and if we leave him free liberty of choice, it is evident that he will run the risk of much waste of energy and time. In order that our university may be of the greatest practical service to our student, we must aid him in his choice by presenting him with that selection of subjects which will most directly lead up to his aim in life, and most easily conduct him through the difficulties of learning to technical knowledge and technical skill. As we have in the former Chapter classed our professors according to the nature of the science they have to teach, so now we must class our students and their studies according to the nature of the aims in life which they have in view. This will group both teachers and taught into entirely new subdivisions.

It has already been agreed that we shall provide technical education for twenty-one or twenty-two professions, embracing all the modern professions, and excluding the three ancient ones,—theology, law, and medicine. And our first question is, whether for all these we must provide twenty-two separate and independent courses of study.

If these professional men were all to be educated in different schools—in buildings apart from one another—we might have to provide twenty-two courses of education; but as they are all meant to be taught in a single building, we shall be able to simplify the matter by means of systematic combination. Resuming here the list of professions for whom we are to provide education, we should have to form the following groups of studies, corresponding to the technical occupations of the students:—

SCHOOL OF MECHANICS.

Pure Science.—Higher Geometry; Higher Algebra; Higher Arithmetic; Higher Statics; Higher Dynamics; Higher Energetics; Higher Chemistry; Higher Metallurgy.

Practical Applications.—Descriptive Geometry; Constructive Geometry; Geometric Movements; Sources of Materials; Properties of Materials; Strength of Materials; Elements of Mechanics; Structural Mechanics; Machinery and Tools; Engines and Prime Movers; Economics of Work; Endurance of Machinery; Machine Shops and Buildings; Mechanical Manufactures; Political Economy; Workshop Economy; Principles of Design.

Work.—In the Drawing Office; In the Collection of Machines; In the Collection of Machine Materials; In the Collection of Raw Materials of Manufactures; In the Collection of Engines, &c.; In Mechanical Experiment; In the Factory; Round the Tour of Home Manufactories; In Foreign Travel.

THE SCHOOL OF CIVIL CONSTRUCTION.

THE ARCHITECTURAL.

Pure Science.—Highest Geometry; Laws of Number and Proportion; Statics; Psychology; Aesthetics; Physics; Chemistry; Animal Physiology; Botanic Organography; Geology; Art History.

Practical Applications.—Descriptive Geometry; Geometry of Vision; Constructive Geometry; Graphic Geometry and Surveying; History of Building Materials; Strengths of Materials; Chemistry of Building Materials; Geology of Stones and Cements; Mineralogy; Stability of Foundations; Stability of Structures; Theory of Arches and Roofs; Forms of Beauty; Forms of Strength; Proportions of Mass; Linear Decoration; Surface Decoration; Solid Decoration; Building Processes, Tools and Machinery; Building Economy; Building

Endurance; Domestic Health; Domestic Economy; Domestic Comfort; Laws of Sound and Hearing in Building; Laws of Ingress, Egress, and Seeing; Laws of Climate and Weather; On Use, Purpose, and Fitness; Principles of Design; Laws of Property and Buildings; Landscape Design.

Work.—In the Drawing Office; In School of Design; In Modeling School; In Mechanical Experiment; In the Museum of Ancient Models; In the Museum of Modern Architecture; In the Collection of Building Materials; In the Collection of Decorations and Art Workmanship; In an Office of Works; On the Works; On Travel at Home; On Foreign Travel.

ENGINEERING.

Pure Science.—Higher Geometry; Higher Algebra; Higher Arithmetic; Higher Statics; Higher Dynamics; Higher Energetics; Higher Hydrology; Higher Chemistry; Higher Geology; Higher Crystallography.

Practical Applications.—Engines and Prime Movers; Theory of Vehicles and Locomotive Machines; Theory of Ships and Steamboats; Chemistry of Building Materials; Geology of Stones and Cements; Mineralogy and Metallurgy; Stability of Foundations; Building Combinations of Materials; Sources of Materials of Construction; Theory of Bridges, Roofs, and Tunnels; Constructive Geometry; Graphic Geometry and Surveying; Descriptive Geometry; Perspective Geometry; Geometric Movements; Strengths of Materials; Elements of Mechanics; Machines and Tools; Theory of Rivers; Theory of Tides and Waves; Theory of Roads, Railroads, and Canals; Principles of Architectural Design; Principles of Metallurgy; Economics of Construction; Endurance of Structures, Engines, Machines, and Implements.

Work.—In the Drawing Office; In the Collection of Engineering Models; In the Collection of Building Materials; In the Collection of Machines; In the Laboratory of Strength of Materials; In the Chemical Laboratory; In Engineering Experiment; In the Factory; On the Works; In Foreign Travel.

THE SCHOOL OF MINES.

Pure Science.—Mathematics; Physics; Chemistry; Geology; Political Economy.

Practical Applications.—Descriptive Geometry; Trigonometrical Surveying; Mineralogical Drawing; Distribution of Minerals; Practical Mechanics; Elements of Machinery; Steam Engines and Boilers; Ventilation; Drawing; Physiology and Chemistry of Life.

Work.—In the Chemical Laboratory; In the Physical Laboratory; In the Drawing Office; In the Museum of Geology; In the Mine; In Foreign Mines.

THE METALLURGIST.

Pure Science.—Mathematics; Physics; Chemistry; Geology.

Practical Applications.—Smelting and Refining; Practical Mechanics; Strength of Materials; Descriptive Geometry; Mineralogical Drawing; Combustion and Ventilation; Elements of Machinery; Steam Engines and Boilers; Statics of Buildings; Nature of Machine Tools; Hydraulic Machinery; Electro-Magnetic Metallurgy.

Work.—In the Chemical Laboratory; In the Physical Laboratory; In the Drawing Office; In the Museum of Geology; In the Metal Manufactory; In Foreign Travel.

THE SCHOOL OF AGRICULTURE.

Pure Science.—Mathematics; Physics; Chemistry; Natural History; Geology.

Applications of Science.—Anatomy of Plants; Physiology of Plants; Anatomy of Animals; Physiology of Animals; Geology of Soils; Chemistry of Soils; Chemistry of Manures; Chemistry of Food; Veterinary Medicine and Surgery; Surveying, Leveling, Plan-drawing, and Draining; Practical Mechanics; Principles of Steam Engines; Agricultural Machinery and Implements; Nature and Influence of Climates; Buildings, Roads, Gates, and Fences; Training Fruit Trees, and Timber.

Practical Work.—In the Mechanical Workshop; In the Hospital for Ani-

mals; In the Farm; In Foreign Travel; In the Chemical Laboratory; In the Physical Laboratory; In the Drawing Office; In the Museum of Natural History; In the Museum of Geology.

THE GARDENER AND FORESTER.

Have an education of similar nature to the Agriculturist, with a specialty in each case. Both have, in addition, to study the principles of beauty in their applications to Landscape Decoration, and in their combinations with Architecture; both require a large course of instruction in the Theory of Climate, and in Physical Geography and Botanical Geography—both, therefore, must study Decorative Architecture. For the rest, the study of the same courses as the Agriculturist is necessary.

THE SCHOOL OF COMMERCE.

THE MERCHANT.

Pure Science.—Geography; Natural History; Ethnology; Political Economy; Doctrine of Probabilities; History; Languages; Ethics; Law.

Practical Applications.—Construction and Outfit of Ships; Docks and Warehouses; Physical Geography; Political Geography; Geography of Plants; Geography of Animals; Geography of Minerals; Weights and Measures of Nations; Moneys of Nations; Statistics and Wealth of Nations; Laws of Value; Laws of Insurance; Laws of Navigation; Principles of Exchange; Theories of Price; Interest and Banking; Laws of Commerce and Shipping.

Work.—In Natural History Collections; In Collection of Raw Materials; In Counting-house and Warehouse; In Foreign Travel.

THE MANUFACTURER.

Pure Science.—Mathematics; Physics; Chemistry; Natural History; Political Economy.

Practical Applications.—Geometrical Drawing; Decorative Drawing; Light and Shade; Light and Color; Principles of Beauty; Principles of Design; Chemistry of Color; Animal Substances; Vegetable Substances; Mineral Substances; Geography of Raw Materials; Mechanics of Raw Materials; Architecture of Manufactories; Architecture of Warehouses; Manufacturing Machinery; Commerce and Banking.

Work.—In Natural History Collections; In Collection of Raw Materials; In Collection of Machine Models; In Collection of Patterns of Manufactured Goods; In the Laboratory; In the Factory; In Foreign Travel.

THE SHIP OWNER.

Pure Science.—Elementary Geometry; Elementary Arithmetic; Elementary Hydrostatics; Elementary Hydrodynamics; Elementary Pneumatics; Elementary Chemistry; Elementary Geography; Elementary Natural History; Elementary Ethnology; Elementary Political Economy; Elementary Languages; Elementary Ethics; Elementary Law.

Practical Applications.—Descriptive Geometry; Strength and Values of Materials; Sources of Materials; Physical Geography; Weights and Measures of Nations; Laws of Nations (and Customs); Moneys of Nations; Laws of Commerce; Insurance (Principles of); Principles of Exchange; Docks, and Harbors, and Warehouses; Navigation; Seamanship; Ship Building; Marine Engine Building; Sail Making; Mast and Rigging; Equipment and Outfit; Lading and Storing; Manning and Clearing Out; Laws of Commerce and Shipping; Laws of Freight and Insurance; Laws of Measurement and Tonnage; Ship's Husbandry; Health, Food, and Safety; Wages and Disbursements; Merchandise and Exchange; Banking and Interest; Navigation Laws; Book-keeping; Stowage.

Work.—In the Drawing Office; In the Ship Model Room; In the Engine Model Room; In the Building Yard; In the Engine Factory; In the Harbor; In the Ship's Store Rooms; In the Warehouses; In the Docks; In the Repairing Yard; In Sail-maker's, Mast-maker's, Rigger's Yard.

THE SCHOOL OF ASTRONOMY, NAVIGATION, AND SURVEYING.

THE SAILOR.

Pure Science.—Elementary Geometry; Elementary Algebra; Elementary Arithmetic; Elementary Geography; Elementary Astronomy; Elementary Mechanics; Elementary Languages; Elementary Pneumatics; Elementary Hydraulics.

Practical Applications.—Drawing; Strength of Materials; Physical Geography; Commercial Geography; Nautical Astronomy; Chart-making; Marine Surveying; Submarine Surveying; Ship Building; Equipment of Ships and Outfit; Stowage and Tonnage; Mastng and Rigging; Laws of Tonnage; Customs and Clearance; Laws of Nations; Navigation Laws; Laws of Storms; Laws of Commerce; Laws of Freight and Insurance; Ship's Husbandry; Health, Food, and Safety; Book-keeping; Navigation; Seamanship; Harbors, Docks, and Slips; Weights, Measures, and Moneys; Steam-engines and Boilers; Artillery; Naval Tactics.

Work.—In the Drawing Office; In the Chart Room; In the Calculating Room; In the Ship Model Room; In the Engine Model Room; In the Building Yard; In the Engine Factory; In the Repairing Yard; In the Training Ship; In Ships at Sea; In Harbors; In Surveying Ships; In Ships of War.

THE SCHOOL OF NAVAL ARCHITECTURE.

THE NAVAL ARCHITECT.

Pure Science.—Higher Geometry; Higher Algebra; Higher Arithmetic; Higher Statics; Higher Hydrostatics; Higher Dynamics; Higher Hydrodynamics; Higher Chemistry; Higher Metallurgy; Higher Pneumatics.

Practical Applications.—Descriptive Geometry; Constructive Geometry; Sources of Materials; Properties of Materials; Strength of Materials; Elements of Mechanics; Structural Mechanics; Engines and Boilers; Propellers and Mechanism; Artillery and Protection; Metallurgy; Economics of Work; Laws of Commerce and Shipping; Freight and Insurance; Navigation; Seamanship; Lading and Ship's Husbandry; Naval Tactics and War; Health, Food, and Climate; Ship's Wages and Economics; Harbors and Docks; Equipment, Rigging, and Outfit; Storing and Lading; Measurement and Tonnage.

Work.—In the Drawing Office; In the Model Loft; On the Moulding Floor; In the Collection of Marine Engines; In the Collection of Materials; In the Collection of Ship Models; In the Experiments of Materials; In the Building Yard; At Sea; In the Engine Factory.

THE MARINE ENGINEER.

This is a mixture of the Ship-builder and the Mechanical Engineer's courses of education, with experience superadded of building Marine Engines, erecting them on board ship, and managing them at sea.

We have now to consider how we shall group the students of these schools, that they may avail themselves simultaneously of such courses of education as are common to each group.

It is plain at first sight, that the civil engineer and the architect are allied professions; that the mechanical engineer and the machinist belong in one group; that the merchant and the ship-owner go together; that the manufacturer and the practical chemist have need of the same knowledge; that the miner and the metallurgist may be grouped together, as also the astronomer, the surveyor, and sailor; that the statesman, the political economist, and the man of literature, have many studies in common: and we shall thus be able to simplify much the courses of study each pupil may have to seek out and appropriate to himself.

I.—*The School of Mechanics.*—1. The Mechanical Engineer. 2. The Machinist. 3. The Marine Engineer.

II.—*The School of Civil Construction.*—1. The Civil Engineer. 2. The Architect. 3. The Naval Architect.

III.—*The School of Naval Architecture*.—1. The Naval Architect. 2. The Ship-owner. 3. The Marine Engineer. 4. The Sailor.

IV.—*The School of Chemistry*.—1. The Professor. 2. The Practical Chemist. 3. The Dyer. 4. The Mineralogist. 5. The Analyst. 6. The Chemical Manufacturer.

V.—*The School of Mines*.—1. The Miner. 2. The Metallurgist. 3. The Practical Chemist.

VI.—*The School of Commerce*.—1. The Merchant. 2. The Manufacturer. 3. The Political Economist. 4. The Ship-owner.

VII.—*The School of Agriculture*.—1. The Agriculturist. 2. The Gardener. 3. The Forester.

VIII.—*The School of Astronomy, Navigation, and Surveying*.—1. The Astronomer. 2. The Surveyor. 3. The Sailor.

IX.—*The School of Literature and Language*.—1. The Statesman. 2. The Political Economist. 3. The Teacher. 4. The Professor.

X.—*The School of Fine Arts*.—1. The Architect. 2. The Sculptor. 3. The Painter. 4. The Decorator. 5. The Designer.

XI.—*The School of Political Economy*.—1. The Statesman. 2. The Economist. 3. The Merchant. 4. The Manufacturer. 5. The Professor.

XII.—*The School of Metaphysics and Ethics*.—1. The Statesman. 2. The Professor. 3. The Moral Philosopher.

XIII.—*The School of Pedagogy*.—1. The Professor. 2. The Teacher. 3. The Schoolmaster.

XIV.—*The Preparatory and Supplementary School*.—A provisional arrangement for bringing up students who are insufficiently prepared for the University.

XV.—*The School of Mathematics*.—1. The Calculator. 2. The Actuary. 3. The Statistician. 4. The Surveyor. 5. The Astronomer. 6. The Professor.

XVI.—*The School of Science and Philosophy*.—This is a school for the training of philosophers, men of science, and men of leisure, who may not propose to become members of professions, but who desire to cultivate the sciences and the philosophies for purposes of personal improvement, and hope to apply their knowledge to the advancement of human society.

Each School must have its Museum of material, apparatus, and practical machinery, and each Science its technical books, and means of special illustration or experiment.

Local Technical Colleges.

Subordinate to this metropolitan university, local technical colleges should be placed in every great centre of local industry. The subjects taught would be nearly the same as in the university, only the theoretical part would not be carried to the same heights of science, and the technical part would be more fully carried out into the technical details of the industries of the neighborhood. Specially attached also to each of them would be an extensive collection of models, examples, materials belonging to the local industries, and a free technical library, with a comfortable reading room.

Country Trade Schools.

The lower class of institutions would be those which either form preparatory schools for the technical colleges, or finishing technical schools for those who can go no further; and these should pervade not only the whole country, but the large towns and the metropolis, there being one such institution for every 20,000 inhabitants in town districts, and for every 10,000 in country districts; and either in the same building or in a different one there should be technical schools in the evening, as complete in their course of instruction for the working men, as in the morning for the youth of the district; and to these schools should be attached a library, museum, and reading-room, similar to that of the colleges, only more elementary, and on a smaller scale. It is these local night schools and libraries for the working men that ought to fulfill the duties in which our mechanics' institutions have so woefully failed, and it may in some cases be convenient that the government should make use of the building and organization of these mechanics' institutes for these technical evening schools.

INTERNATIONAL EXHIBITIONS AND TECHNICAL INSTRUCTION.

HISTORICAL.

THE most important event in the history of governmental interposition in scientific and technical instruction in Great Britain was the Universal Exposition of the Industries of Nations held in London in 1851—the first of that series of sublime lessons, read of all men, of the dignity and value of human labor and artistic skill, when directed by science to a knowledge and to the observance of the laws of nature, which has already modified, not only in Great Britain, but in all civilized nations, systems and institutions of industrial training. The approach to this first great demonstration of the existing condition of the industry and products of the world—to this series of competitive trials of intelligence and skill between workmen of the same and different nations, trained in different ways in the use of the same material, for the same purposes of utility and ornamentation—was gradual. In all civilized countries, exhibitions of a local or provincial character, and in some cases of national scope, had been held within the last half century. In England, the Society of Arts, as early as 1756, had offered prizes for specimens of tapestry, carpets and porcelain, and in 1761, of pictures and engravings, displayed in rooms of the Society at London; but it was not till 1828 that a national exhibition of the products of the workshops, factories and studios of England, of a varied and general character, took place in London, under the name of the Royal Repository. This was followed, in 1837, 1839, and 1849, at Manchester, Leeds, and Birmingham.

In France the first systematic and successful Industrial Exhibition of national importance was held in 1798, on the suggestion, and under the management of the Marquis d'Aveze, commissioner of the national manufactories of Sèvres and the Gobelins. The second took place in 1801, and the third in 1802, under the active lead of the First Consul (*Napoleon*), assisted by a commission of the most scientific men of France, who visited the most important factories, workshops, and ateliers of France, to explain the individual and national advantages of such an exhibition of the products of every department of labor and skill. That of 1801 was held in the quadrangle of the Louvre, and one of the bronze medals was awarded to Jacquard for his loom. To give stability and provide the agency of similar exhibitions, a Society for the Encouragement of the Industrial Arts and Manufactures of France was instituted in 1802, and under its auspices, aided by the government, numerous National Fairs have been held—each with a larger number of exhibitors, and with more varied specimens of scientific invention and artistic skill—especially in the direction of common wants. The Exhibition of 1849 is remarkable for the proposition

of M. Buffet, the Minister of Agriculture and Commerce, to all the Chambers of Commerce, to include specimens of the industrial productions of other nations in the competitions for honorable mention and premiums. But the proposition did not meet with general favor, and its consideration was dropped. The various French Expositions had been much frequented by the manufacturers and designers of other countries, and numerous illustrations of the finest articles in the domain of Art had been published—especially of those of 1845, and 1849—in other countries; the broad international advantages of such displays of the perfected specimens of artistic and trained labor impressed many minds in different countries, but nowhere with such immediate practical results as in England. It only needed the right word from the voice of authority to bring this feeling into action; and that word was uttered by his Royal Highness, Prince Albert of England, to the Society of Arts, Manufactures, and Commerce, of which he was President:—"Now is the time to prepare for a Great Exhibition—an Exhibition worthy of the greatness of this country, not merely national in its scope and benefits, but comprehensive of the whole world, and I offer myself to the public as their leader, if they are willing to assist in the undertaking." The offer was accepted—the Society, the press, capitalists, manufacturers, artists, artisans, and finally the government, enlisted; and in the summer of 1851, in the Crystal Palace in Hyde Park, in the presence of 100,000 people of every nation, the Great International Exhibition of the products of every clime, and the fabrics of the workshops of every tribe, was inaugurated. The Exhibition—the first great competitive trial of nations in the peaceful field of industry—was a complete success—a sublime monument of the dignity and value of labor, when directed by intelligence and taste, to minister to the necessities and rational pleasures of mankind.

RESULTS.

The benefits resulting to Great Britain, and sooner or later in the influence of this and similar exhibitions, to all countries, from the Great Industrial Exposition of 1851, can not be over-estimated, although it may be difficult to present them in a condensed statement. We shall notice only a few, with special reference to technical instruction—the formal training of workmen of all grades in knowledge, taste and skill in their several occupations, through familiarity with the best specimens of material, implements, machinery, and work, collected in museums or exhibitions, and opportunities of study and practice in schools organized and conducted with special reference to imparting such knowledge, taste, and skill.

1. Every person, who made even a brief visit to the Exhibition, had a clearer conception of a finished specimen of manufacture or handicraft, in the line of his own wants, than he had before, and thus a demand for a better style of workmanship was created.

2. Every artist, manufacturer, foreman, or operative who visited the Exhibition, and especially those who studied the department with which he was most familiar, or the most interested, had in his mind a higher standard of possible attainment than most of them had before reached. Efforts at improvement in design, and in detail, were at once made, and the means for further improvement were demanded, and, to some extent, furnished.

3. The attention of capitalists, public-spirited citizens and statesmen was

forcibly arrested to the necessity of providing at once better elementary training for all classes, and especially for those who have to live by their labor; and at the same time, securing to designers, engineers, foremen and superintendents generally of large works, better artistic and scientific training. The immediate results of this attention, and agitation, were more liberal appropriations for primary schools, and for schools of science and art, a general discussion of the whole subject of National Education, and the final passage in 1870 of an act, establishing a system of elementary schools for England, as well as the earlier creation of the Government Department of Science and Art, which is rapidly changing the whole aspect of scientific and technical instruction in Great Britain, and influencing its development in every civilized country. The Museum of Industrial Art at South Kensington, created since 1852, with its affiliated schools and museums, central and provincial, is now the model for imitation for Europe and America.

4. The perpetuation of the unique structure designed specially for the Exhibition, in the Crystal Palace at Sydenham, and its equipment, and the embellishment of the grounds for the avowed purposes of public utility and recreation, "in the direction of science and art," at a cost of over £1,500,000—has already accomplished its object with more than 4,000,000 visitors who have been attracted to the spot up to 1869.

5. The permanent organization and continued activity of the original Commission, composed of some of the most eminent men (in science, letters, arts and affairs) in the kingdom, through whose wise management this unprecedented enterprise was a pecuniary success—is another result, which is perpetuating the influence of the Great Exhibition in many directions:—

First—In securing the possible union of many institutions of Science and Art, on almost the only central spot within the vast circumference of the metropolis which could be secured for the purpose. The purchase of the Gore Estate in South Kensington, having with subsequent exchanges and purchases an area of 100 acres, accessible by railways and other cheap public conveyances, and connected with public parks and grounds, already highly improved, to an extent of 640 acres—out of the surplus income of the Exhibition (150,000*l.*) and a special grant of a like sum by Parliament.

Second—The subsequent erection on this estate of buildings devoted to Art and Science at a cost of over 1,000,000*l.*, and the gathering within them of museums and collections (hardly yet begun) which the like sum could not even now purchase.

Third—The erection of an appropriate hall for annual exhibitions of industrial productions, and other purposes, at an expense of near 300,000*l.*

The purchase and improvement of this estate for the promotion of scientific and artistic knowledge, as applicable to productive industry, would not have been possible but for the Great International Exhibition of 1851. No fitter memorial of the first suggester of this enterprise—the good Prince Albert, "to whose far-seeing and comprehensive philanthropy its first conception was due, and to whose clear judgment and untiring exertions in directing its execution, the world is indebted for its unprecedented success,"—could be devised than this estate thus improved. No monument at once so attractive for all classes in the kingdom, or so full of instruction and inspiration of the noblest kind for all time, in every department of industrial activity, both that which ministers to

the necessities and comforts of life, and that which labors to realize in form and color, the loftiest ideal of the artist and poet,—could be erected to perpetuate the memory of this great event in the history of national industries, than the grounds and structures devoted to Science and Art in South Kensington, secured by the wise management of the Commissioners of the Exhibition of 1851.

ALBERT HALL OF ARTS AND SCIENCES.

The first stone of a solid, majestic, and ornamental structure was laid by her Majesty the Queen on the 20th of May, 1867, on the site north of the Gardens of the Royal Horticultural Society at South Kensington—to be known as the **ALBERT HALL OF ARTS AND SCIENCES**, and to be used for the promotion of scientific and artistic knowledge as applicable to productive industry. The Royal Commissioners gave a site valued at 60,000*l.*, and advanced the sum of 50,000*l.* towards the cost of the building, which has been contracted for within the original estimate of 200,000*l.* The hall will accommodate 9,000 persons, and will be used only in the interests of Science and Art—the first occasion being the inauguration of the First Permanent Exhibition of Industrial Art in the spring of 1871.

The objects for which the Hall will be available, as enumerated in the Charter of Incorporation, are:—

- (a.) Congresses, both national and international, for the purposes of Science and Art.
- (b.) Performances of Music, including performances on the organ.
- (c.) The distribution of prizes by public bodies and societies.
- (d.) Conversazioni of societies established for the promotion of Science and Art.
- (e.) Agricultural, horticultural, and the like exhibitions.
- (f.) National and international exhibitions of works of art and industry, including industrial exhibitions by the artizan classes.

ANNUAL INTERNATIONAL EXHIBITIONS.

The Commissioners of the International Exhibition of 1851 have arranged for a series of Annual International Exhibitions of Select Works of Fine and Industrial Art and Scientific Invention—arranged in classes and not according to nations. The first of the series will be opened, Monday, May 1, 1871, in permanent buildings adjoining the arcades of the Royal Horticultural Gardens, and closed Saturday, September 30, 1871. The objects in the first exhibition will consist of the following classes:—

I. *Fine Arts Applied or not Applied to Works of Utility*—embracing (1.) Painting of all kinds. (2.) Sculpture, modeling, carving, and chasing. (3.) Engraving. (4.) Architecture. (5.) Tapestries, carpets, embroideries. (6.) Designs for decorations, manufactures. (7.) Copies of mosaics, enamels, &c.

II. *Scientific Inventions and New Discoveries* of all kinds.

III. *Manufactures*.—(a.) Pottery of all kinds. (b.) Woolen and worsted fabrics. (c.) Educational.—1. School buildings, fitting, and furniture. 2. Books, maps, globes, &c. 3. Appliances for physical training, including toys and games. 4. Specimens and illustrations of teaching fine art, natural history, and physical science.

IV. *Horticulture*.—International exhibitions of new and rare plants, fruits, vegetables, flowers, &c., will be held by the Royal Horticultural Society, in conjunction with the above exhibition.

One-third portion of the whole available space will be assigned absolutely to foreign exhibitors.

NATIONAL LESSONS IN TECHNICAL EDUCATION.

Mr. J. Scott Russell, in his valuable treatise on *Systematic Technical Education for the English People*, in a chapter with the above heading, introduces some of the lessons which he thinks may be read in the International Exhibitions of the last twenty-five years.

Of late years, a series of great public events have been taking place, which have been of great national value in serving to awaken the British people from that lethargy of supreme satisfaction with which they have so long continued to regard themselves as the most skilled, accomplished, and successful manufacturing people in the world. For half a century they had been enjoying the fruits of the inventions of a few men of genius who had created the whole system of modern manufacturing machinery, and Providence had also endowed them with the accumulated wealth of countless centuries stored up in the bowels of the earth, in the shape of coal and iron, ready to be used or wasted and worked out in this manufacturing century. The genius of a few men having set coal and iron to do the manufacturing work of mind and man, the citizens of England had begun to think that it was they who were superior in intelligence and civilization to the un-coaled, un-ironed, un-engineered nations around them. For half a century nothing occurred to awaken them from this dream, and for that half century the works of English engineers and English iron and coal bore the highest reputation, and earned the highest prices in the world.

The last eighteen years have seen a series of events, slowly, regularly, and disagreeably awakening the nation from a pleasant belief, once reality, now a dream. Eighteen years ago there began a series of competitive trials of intelligence and skill between the citizens of the different civilized nations of the world. Adam Smith's views of the wealth of nations were to be put to the new trial of competitive examination. The scene of the first trial was in London, in 1851. It was the famous Universal Exhibition of the Industries and Products of all Nations. In that great school the civilized nations of Europe had their first lesson in technical education. There they were able to see in how many things England retained her hereditary excellence; and England was there able to see in how many branches of taste and skill other nations possessed qualities in which she was wanting. But in that competition she had no cause for humiliation. The genius of Paxton would alone have sufficed to rescue the skill and the manufacturing industry of England from humiliation. For in the building of the Crystal Palace in Hyde Park was exhibited an entirely new and highly skillful system of modern architecture, in which iron and

glass, great staples of English manufacture, and of modern invention, formed the sole materials of construction of the largest building of the world, and within which could be seen assembled at one time 100,000 of the people of every nation of the world, surrounded by the products of every clime, and the works of every trite.

This was England's first great lesson on technical education; the second was the similar Great Exhibition held in Paris in 1855.

Nothing was more striking than the enormous progress nations had made from their first lesson. Some members of each group of human inventions and skill had felt their inferiority, and vigorously set about its redress. England had been struck by the amazing superiority of some continental nations in the beauty and grace of design, which sufficed to convert the rude and nearly worthless materials of clay and flint, which are to her even more abundant than to other nations, into valuable and invaluable works of art, in earthenware and glass. She had occupied the four years' interval under the auspices of the Prince Consort—the real author of these international lessons—in collecting and diffusing through the manufacturing counties the best models of the best masters, in establishing for the potteries and glass works schools of design, and in training teachers for art workmen. These young institutions already bore fruit in 1855, and England was no longer outstripped in pottery and glass. It is curious, but instructive, to notice that the Exhibition of 1851 had disgusted the whole nation with its blue earthenware plates, cups and saucers, borrowed from the 2000 years' tradition of China, and with its huge lumps of glass, called decanters and glasses, cut or moulded into hideous distortions of form.

The largest shopkeepers of London will tell you that ever since that date the old patterns are worthless, save for export to barbarous countries—that all England has learnt a lesson, and made a revolution in taste for these common things.

The lessons which French and German nations had learnt were of another sort. They had felt their inferiority in the great objects of manufacturing and constructive skill, in which, in 1851, we held supremacy. They were happy in having princes or sages as wise as our own, who saw that the great manufactures of England were iron and steel, the great instruments of skill, industry, mechanical power, and transport. They saw that the profusion of our raw materials gave us vast advantages in time and money. They were discriminating enough to see also that in mere raw material, mere mechanical power, and mere brute labor, competition with us was hopeless. And they argued thus: the one thing we can set against the English wealth in raw material is greater skill in using what we have. The way to compete with them in mechanical power is to apply higher science in the treatment and application of it; and the way to compete with them in iron and skill is to buy of them the unwrought material, which they will sell us at nearly cost price, in consequence of their free trade and close competition, and then to apply the skill of our own artisans, highly educated and trained, to construct out of these raw materials all the higher kinds of tools, instruments, and machinery, in those forms and applications which enhance to the highest degree the value of the material.

In 1855 we saw that the French and the Germans had already advanced far into our own provinces of iron, steel, and metal manufacture. We found that they had already established schools in every metropolis, large town, or center of industry, for educating professional men and masters, for training foremen and skilled workmen, and for educating apprentices. What we saw in 1855 was instructive to the clear-sighted and the thoughtful, but it was not humiliating to the mass of the English visitors, and it did not alarm the English manufacturers. Therefore, unhappily, they did not take warning in time. They merely committed the common blunder of despising their rivals. When they saw the enormous progress of the French in steam machinery, and its metal products occupying a huge annexe, they merely said: "Look! they have been imitating us; but never mind, these are mere *lours de force* got up under the patronage of the Emperor to make a show at his Exhibition. They serve to gratify the vanity of the French nation, but they can never compete with us in quality, quantity, or price."

This self-satisfaction was a huge blunder. The progress of the French and German nations has shown there was an ominous reality.

The third lesson was our own Exhibition of 1862. It was the first Exhibition humiliating for us. Our administration of that Exhibition was humiliating, for it was a grand administrative failure. The building itself was to us, as an intellectual, mechanical, and artistic nation, an abject humiliation. Hideous on the outside, without unity or effect as a whole; inconvenient in the inside, ugly in its details, crowded and unseemly in the distribution of the objects exhibited, with but a single portion of it serving rather to exaggerate than redeem the effects of the other—an admirably arranged, lighted, and ventilated picture-gallery. Paxton was still alive, and also the distinguished men who, allied with him, had created the Exhibition of 1851, and had afterwards transported it to form the Crystal Palace on Sydenham Hill, there to serve as an enduring monument of our first great national lesson in technical education, and as a permanent institution for the refinement of the taste and culture of the people. Though Paxton was still living, his genius was not permitted to serve the nation, and that nation felt that the quickest way to spare itself from perpetuating its own disgrace and humiliation was to sweep off the face of the earth this disgraceful monument of its want of foresight, design, and organization.

Thus disgraced by the edifice itself, there was little to be seen in the interior to give an Englishman cause for self-gratulation. Switzerland had there her wonderful aniline colors, the discovery of her distinguished chemist, Schönbein. Prussia was there with her huge ingots of Krupp's steel—already beginning to displace on English railways the finest qualities of Yorkshire iron. America was there with some of her exquisite machinery for economizing labor. Italy was there with her already reviving manufactures of classic earthenware, her decorated glass, and her Etruscan gold. France had been diligently following up her determination to equal us in our great staples of machinery and iron manufacture, and the stately steam-engines she then produced, as examples of her ordinary work in the steam-ships of her navy and mercantile marine,

sufficed to show us that her progress was true, and that we had been mistaken in calling her triumphs of 1855 *triumphs de force*. All around us in that Exhibition were proofs that every nation had begun to rival us in some one of our great specialties; and if we were not instructed, we were at least sufficiently disgusted with that Exhibition to feel, and to express a very pervading conviction, that for our part we would cease to repeat Exhibitions which failed to mark any progress of ours, and only served to advertise to the world the more rapid progress of rival nations. That feeling of disgust was the first wholesome symptom, but it did not at that time mature itself into any conviction of the necessity of any great national exertion to advance the manufacturing skill of the English people. We had exhibited a sufficient number of new Iron Armstrong guns, and models of iron and iron-coated men-of-war, to make us feel that in all things we were not yet distanced.

It was the Exhibition of 1867, in Paris, which gave the nations, and especially England, a final lesson. By that Exhibition we were rudely awakened and thoroughly alarmed. We then learnt, not that we were equalled, but that we were beaten—not on some points, but by some nation or other on nearly all those points on which we had prided ourselves.

I shall shortly sum up the practical conclusions which I myself, and the most eminent of my colleagues, arrived at. We were sent by the British Government to serve as jurymen in adjudging the awards of the Exhibition, and to report to the Government the practical facts of national importance which we might there observe. In the great manufactures of iron men-of-war, with their huge steam-engines, ponderous wrought-iron armor, we found ourselves equalled, if not beaten. The large marine engine of Dupuy de Lôme neither excelled the English marine engine in exquisite truth of workmanship nor in high finish, for I have elsewhere said that the English workman's conscientious pride in his work is not to be excelled by that of the workmen of any other country. But the design of the French engine showed so much fore-thought, practical wisdom, and provision for economy, as left no doubt that it would consume less fuel, do more work, endure longer, and run less chance of accident than our own engines; all of these being qualities heretofore constituting our own superiority.

Next in iron armor. Their ships carried iron armor as thick and as strong as our own, and they were armed with guns and supplied with ammunition which could just penetrate that armor, but which that armor was just able to prevent from piercing. And their ships presented arrangements for securing all the advantages of simultaneous firing in every direction which we had claimed for ours, with this additional advantage, that the French had attained that which we had at enormous expense tried but failed in obtaining—efficient breech-loading guns, which enable them effectually to deliver 17 shots to our 10.

Thus our naval supremacy was shown to be ended, so far as the manufacture of *matériel* and mechanism is concerned.

Coming to land-machinery and structures, we found, in the French department of the great building, a multitude of steam-engines of French manufacture, and even from distant provinces, distinguished by our own

perfection of mechanical execution and high finish, but distinguished also beyond any of our own for the elegance and perfection of their mechanism and arrangements for economy. With the French, fuel is dear; they find it worth while to fetch it from England and pay the freight, but they have set their minds to compensate this inequality by their superiority of design and contrivance. So they not merely invented boilers well calculated to endure, keep clean, and extract the largest quantity of heat out of the fuel and to make with it high and strong steam, but they also contrived the engines in such a manner as to turn that steam to better account than in our engines, so as to get more power out of a given quantity of fuel, in a higher proportion even than the greater cost of our own fuel exported into France—a clear triumph of forethought and ingenuity over wasteful, unthinking wealth.

There was but one steam-engine which rivalled them, and that was more the contrivance of the American than of the Englishman whose name it bore.

But perhaps the most remarkable group of all the exhibitions in Paris, was the group of large manufactures in iron which showed the products of the furnaces, forges, and iron-mills of France, Germany, and Belgium. Everywhere in rails, railway-wheels, railway tires and axles; in large wrought-iron beams for house building, in iron plates and bars, and frames for iron ships—in these, which were all our own, we found ourselves rivalled, excelled, in size and quality, and competed with in price. On land, therefore, as well as at sea, our mastery of the iron trade seemed to have disappeared.

In smelting, mining, locomotive building, and the great branches of commercial machinery, a single great establishment in France, called Creusot, appeared like a chivalric knight to issue a challenge against all England.

Creusot possesses the natural advantages of England, inasmuch as under its own soil it has the iron, the coal, and other minerals, in the same abundance as ourselves. But Creusot, under the wise direction of President Schneider, was endowed with an advantage which we have neglected—the possession of a systematic organization of technical schools. Creusot has a generation of workmen schooled and trained on the spot. The schools are a model which we shall long emulate in vain. It will take us twelve years to overtake Mr. Schneider. He imports his locomotives even into England; and all round the coasts of France, and round her inland borders, Schneider serves with locomotive engines, iron plates, and forgings, customers who used to come to us for these commodities. It is not in price merely that he competes with us. It happened to me to be professionally occupied in a foreign country where the iron for a large engineering undertaking was about to be contracted for. Competitive tenders were obtained from some of the best works in England, and from Creusot. The prices were so near as to have little influence on the result, but they were slightly in favor of the English manufacturer. The contract was given to Creusot, and when I inquired officially the reason which had sent the contract to France, I was informed that they could more perfectly rely on the uniform excellence of the quality of iron from Creusot than

from England—a result to an English engineer sufficiently humiliating. I asked the value of this character in the opinion of the buyers, and was answered that they considered it equivalent to more than five per cent. in favor of France.

Another fact of the same sort in the same place expressed the same conviction. The large iron forgings which were imported for the same work, came from France, not England. The answer received this time was that the large forgings were cheaper in England than in France, but that in France the forgings were so much better formed to the finished shape as to be worth more than the difference in price.

I have dwelt on these instances mainly because they are in departments in which I can venture to express a professional judgment. In the Prussian department were triumphs of technical skill, palpable to all observers. Steel cannon, more powerful than any of our own, carrying larger shot with heavier powder charge. Large ingots of steel, of magnitude and quality unequalled by any nation. Tires of locomotive wheels, which, imported into England, supersede our own highest qualities of iron; and complicated members of machines forged by Krupp out of a single piece of steel so as to be equivalent to eight or nine of the old pieces, formerly fastened imperfectly into one. These were some of the triumphs hastily exhibited by Prussia, even at the end of her costly war.

I will not weary the reader with further observations of my own.* I have said enough to let him understand how the Exhibition of Paris startled a thinking Englishman; and ended by convincing him that England had been asleep, and that a whole generation of wakeful, skilled workmen had been trained in other countries during the interval between 1851 and 1867. Fifteen years is the time necessary to train a generation of skilled men. Some nations had already possessed that time and turned it to that account, with the results we then saw in Paris.

That is a lesson on no account to be lost. It is the crowning lesson of the series begun in '51, and it is the intention of the following evidence to impress on Englishmen, from the legislator to the craftsman, the great fact that we have let one generation grow up uneducated and untrained, and that no question now remains for us but this: shall we now allow a second generation to grow up equally untrained, unskilled, and left behind in the race?

I now, therefore, proceed to give the opinions of qualified men, who have, with extraordinary pains, gathered the lessons and moral of the Exhibition of Paris for the benefit of the English people. A new organization was provided, of which we can scarcely imagine the full value to have been apprehended at the time it was initiated. There were, of course, the usual reports of the jurors and the prizes which followed their awards; but awards and medals became so profusely showered that their number nearly neutralized their value. Besides, and, we may say, above and beyond the jurors, was a higher series of reports prepared by Special Commissioners sent to report on the results of the Exhibition, with reference to national

* The reader who desires more information than is given in this chapter, will find it not only in the works themselves from which the following extracts are made, but in the reports of the jurors and of our own government reporters, which are published in a separate volume.

interests, and the large number of their reports have already been printed and have already appeared in a series of "Kensington Blue Books." A second series of reports, of a still more strictly technical nature, was elicited by the Commissioners of Schools, who had ascertained that many of the reports on the French Exhibition appeared to throw the blame of certain cases of inferiority on the lower technical education of the British people, and the commission issued a series of inquiries of which they then published the report.

On this report the Government, having taken alarm, sent abroad a Commissioner, if not officially, at least *officieusement*, to ascertain by personal inquiry whether the alleged defects of our systems of education and our inferiority to some other countries in some sorts of technical skill were real or imaginary; and we have in the report of Mr. Samuelson to the Vice-President of the Council of Education, the views of a practical manufacturer concerning the previous statements. All these sources of information agree on three points,—on the great practical value of education to a people; on the admirable organization provided by the Governments of other countries for giving to their people systematic and universally-diffused technical education; and, thirdly, on the deplorable neglect of such measures which has characterized our own Government and people.

But, in my estimation, there is a collection of documents of far more importance than all these put together, which has just been published in an unassuming form by the Society of Arts, and issued from their rooms in the Adelphi, at the small price of half-a-crown. I doubt whether the Society itself clearly saw what it was about when it undertook the harmless, beneficent duty of offering to pay the traveling expenses of such English artisans as wanted to study their own departments of trade in the French Exhibition, and could not afford the cost; and when in return for this benefit it imposed the modest condition that they should report in writing on what they had seen and learnt. Out of this simple act has grown a collection of reports, 689 pages of closely printed matter, full of subject for the gravest thought—treating, in fact, the whole question of the social condition, moral and religious education of the workman, and of the duties which various Governments have either neglected or performed, in giving or withholding from the youth of a nation that intelligence, skill, and taste which they unanimously declare education can promote and develop, if it cannot create. It is the quiet, reasonable, practical, and moderate tone in which all this has been investigated and set down, which renders this volume the notable contribution to social science in 1867.

Of all these four separate sources of knowledge, I should wish to convey to my readers the aim, the substance, and the conclusions. I fear I shall not be able in one chapter to overtake all of them, for the field is both wide and prolific, covering nearly all the branches of human industry.

I. Taking up first the "Report relative to Technical Education by the Schools Enquiry Commission of 2d July, 1867," I find the Commissioners issuing a request for information to some eminent jurors and others as to the truth of certain "evidence considered to be afforded by the International Exhibition at Paris of the inferior rate of progress in manufacturing and mechanical industry in England, compared with that made in

other European countries;" and they add, "it has been stated to us that this alleged inferiority is due in a great measure to the want of technical education, and we have therefore thought it desirable to ascertain from many eminent English jurors in this department whether they agree with this opinion, and we think it expedient at once to report to your Majesty the answers which we have received to our inquiry on this point."

The gentlemen whom they consulted, and whose answers they have printed, were: Dr. Lyon Playfair, F.R.S., Professor Tyndall, F.R.S., Dr. David Price, J. E. McConnell, C.E., James Young, chemical manufacturer, J. Scott Russell, F.R.S., Captain Beaumont, R.E., Robert Mallet, C.E., Rev. Cannon Norris, M.A., Professor Frankland, F.R.S., John Fowler, C.E., Warrington W. Smythe, F.R.S., E. Huth, Peter Graham, A. J. Mundella, W. Spotten, thus representing many of the most important departments of our educated professions, our applied sciences, engineering, education, and manufactures. I shall content myself with giving the essence of these opinions

Dr. LYON PLAYFAIR gives, as the result of his own inquiry as a juror, and of those of other jurors: "A singular accordance of opinion prevailed that our country had shown little inventiveness, and made but little progress in the peaceful arts of industry since 1862. . . . Out of ninety classes there are scarcely a dozen in which pre-eminence is unhesitatingly awarded to us. . . . The one cause upon which there was most unanimity of conviction is that France, Prussia, Austria, Belgium, and Switzerland, possess good systems of industrial education for the masters and managers of manufactories and workshops, and England possesses none."

Professor TYNDALL says: "I have long entertained the opinion, that in virtue of the better education provided by continental nations, England must one day, and that no distant one, find herself outstripped by those nations, both in the arts of peace and war."

Mr. HUTH writes: "I am sorry to say, that although we may still be unsurpassed in many of our productions, we no longer hold that pre-eminence which was accorded to us in 1851. . . . The enormous strides that have of late been made by our continental rivals in France, Belgium, Prussia, and Austria, will make it daily more difficult for our woollen manufacturers to hold not only their former prominent position, but even to maintain their present one. . . . I found that it is the want of industrial education in this country, which prevents our manufacturers from making that progress which other nations are making. . . . I found both masters and foremen of other countries much more scientifically educated than our own. . . . The workmen of other countries have a far superior education to ours, many of whom have none whatever. . . . Their productions show clearly that there is not a machine working a machine, but that brains sit at the loom and intelligence stands at the spinning-wheel."

Mr. McCONNELL says: "In the class for which I was juror for England, I made a very careful examination and comparison of our locomotive engines, carriages, railway machinery, apparatus, and *matériel* with those exhibited by France, Germany, and Belgium. I am firmly convinced that our former superiority, either in material or workmanship, no longer exists. . . . Unless we adopt a system of technical education for our work-

men in this country, we shall soon not even hold our own in cheapness. . . It appears to me, Government should take the matter in hand. . . There should be mining schools in South Wales, Staffordshire and Durham; and machinery and engine schools in Manchester, Glasgow, &c."

Professor FRANKLAND says: "As a juror in Class 44, of the Paris Exhibition, I was not only forcibly struck by the want of evidence of progress in the different branches of chemical manufactures carried on in Great Britain, but still more so by the great advances made by other nations, especially Germany, France, and Switzerland, in respect of such manufactures, since 1862, when, as a juror in the corresponding Class, I had also an opportunity of comparing the chemical manufactures of different nations. . . In the Polytechnic schools of Germany and Switzerland, the future manufacturer or manager is made familiar with those laws and applications of the great natural forces which must always form the basis of every intelligent and progressive industry; it seems that at length this superiority in previous training, is more than counterbalancing the undoubted advantages which this country possesses in raw material."

Mr. MALLEY says: "I fully agree that a better system of technical education for all classes connected with industrial pursuits has become a pressing necessity in Great Britain, and that immediate steps ought to be taken for organizing and procuring, legislatively, such a system;" he has been long convinced that "unless checked by a vast improvement in our own educational system, general and technical, the pre-eminence of England must decline with a rapidly accelerating pace."

Mr. DAVID PRICE says: "What is really wanted for this country, and is of vital consequence to our future prosperity, is a higher scientific culture of those who are likely, in the natural course of events, to be master manufacturers; so that when discoveries are made they may fructify, and not stagnate or decay, as has too often been the case, for want of intelligence on the part of those who command capital and works, to see their merits."

The evidence given by other jurors is not less strong, but I can only spare room for one more quotation, that of Mr. MUNDELLA:—"The branch of industry with which I have been connected for thirty years, is the manufacturing of hosiery. I am the managing partner, employing 5000 work-people; with establishments in Nottingham, Derby, and Loughborough, employing 4000, and with branches at Chemnitz and Pausa, in Saxony, employing about 700 persons. I have, for four or five years past, been increasingly alarmed for our industrial supremacy, and my experience of the Paris Exhibition has only confirmed and strengthened my fears. . . . I am of opinion that Englishmen possess more energy, enterprise, and inventiveness than any other European nation. The best machines in my trade now at work in France and Germany, are the inventions of Englishmen, but are there constructed and improved by men who have had the advantage of a superior industrial education. At the largest establishment in Paris, these machines are constructed and improved on thorough scientific principles, under the superintendence of a young man, who, I was informed, took high honors at the school of the Government in Paris. . . . Precisely the same thing is taking place in Saxony; but the Saxons are, in

respect of education, both primary and industrial, much in advance of the French, and in my branch, they are our most formidable rivals. . . . The contrast betwixt the workpeople of Saxony and England, engaged in the same trade, is most humiliating. I have had statistics taken of various workshops and rooms in factories in this district, and the frightful ignorance they reveal is disheartening and appalling. . . . In Saxony our manager, an Englishman of superior intelligence, and greatly interested in education, during a residence of seven years, has never met with a workman who cannot read or write—not in the limited and imperfect manner in which the majority of English artisans are said to read and write, but with a freedom and familiarity that enables them to enjoy reading, and to conduct their correspondence in a creditable and often superior style. Some of the sons of our poorest workmen in Saxony, are receiving a technical education at the Polytechnic schools, such as the sons of our manufacturers cannot hope to obtain. . . . I am of opinion that the English workman is gradually losing the race, through the superior intelligence which foreign governments are carefully developing in their artisans. . . . The education of Germany is the result of a national organization, which compels every peasant to send his children to school, and afterwards affords the opportunity of acquiring such technical knowledge as may be useful in the department of industry to which they are destined." His concluding sentence ought to carry great weight—"If we are to maintain our position in industrial competition, we must oppose to this national organization one equally effective and complete; if we continue the fight with our present voluntary system, we shall be defeated, generations hence we shall be struggling with ignorance, squalor, pauperism, and crime; but with a system of national education made compulsory, and supplemented with art and industrial education, I believe, within twenty years, England would possess the most intelligent and inventive artisans in the world."

II. It is no wonder that, with such a report, made to her Majesty, from such a Commission as that of which Lord Taunton is chairman, the Committee of Council on Education should have thought it necessary to obtain some little information as to what other countries were doing for the technical education of their people. They solicited, through our representatives abroad, such printed papers as the various governments could give them, regarding the organization of technical schools, and we learn that they are translating some of these for public use. They also requested Mr. Samuelson to visit, or accepted his offer to examine (for it is not quite clear which), manufacturing industry abroad, in its relation to technical schools; and the result is a letter addressed by him to the Vice-President of the Committee of Council on Education, moved for by the House of Commons, and printed in November last.

Mr. Samuelson, M.P., traveled in France, Belgium, and Germany, examining, as he went, the most famous manufacturing establishments on the Continent, which stand in direct rivalry to our own. He found everywhere in these establishments men of all ranks better educated than our own; working men less illiterate—foremen and managers well educated, and masters accomplished, well-informed, technical men. He traced out the pupils of technical schools to their practical and successful results, as

the superintendents of large works, and he sums up the results of his examination, in a paragraph which appears to confirm all the reports made to that Commission, which was the origin of the inquiry.—“I have attempted to show, by examples, what is the condition of some of the leading industries in these countries, (France, Switzerland, and Germany). I do not think it possible to estimate precisely what has been the influence of continental education on continental manufactures. . . . That the rapid progress of many trades abroad, has been greatly facilitated by the superior technical knowledge of the directors of works everywhere, and by the comparatively advanced elementary instruction of the workers in some departments of industry, can admit of but little doubt. . . . Meanwhile, we know that our manufacturing artisans are imperfectly taught, our agricultural laborers illiterate; neither one nor the other can put forth, with effect, the splendid qualities with which Providence has endowed our people. Our foremen, chosen from the lower industrial ranks, have no sufficient opportunities of correcting the deficiencies of their early education; our managers are too apt, in every case of novelty, to proceed by trial and error, without scientific principles to guide them; and the sons of our great manufacturers too often, either despise the pursuits of their fathers, as mere handicrafts, unworthy of men of wealth and education, or else, overlooking the beautiful examples which they afford of the application of natural laws to the wants of men, follow them solely as a means of heaping up more wealth, or, at the best, for want of other occupation: to the evils of such a condition, not only our statesmen, but also our people, are rapidly awakening, and the disease being once acknowledged, I believe the remedy will soon be applied.”

III. In the two preceding sections, we have been occupied with what we may call the upper side of the question, that is to say, we have seen it from the master's point of view, and we have also seen how it is regarded by men of science, of education, and of distinguished technical skill. Let us now see how the questions of technical education and manufacturing supremacy are regarded from the workman's point of view, and so try to understand the under side of the question.

What do our technical workers think of their own skill, intelligence, taste, judgment, knowledge, culture, refinement? What do they think of their education, of their school training and apprenticeship? What do they think of the opportunities provided for the matured workman, who wishes to study, to copy, to increase his stores of science, and rise to higher grades of skill? What do they think are the duties of Government to him and his fellows? Do they think foreign governments wiser in their care for their working people than ours? Do they think the systematic education of their people to be waste of pains or wise foresight? In short, do they find in the institutions of any other country, any social amelioration which they would wish to introduce into their own?

On all these points, and a great many more, we have the evidence of fifty-five witnesses, all workmen, most of them evidently superior workmen, and who are entitled by their acquirements to be termed at least, self-educated men. Among so many witnesses, we cannot call up all; but as we have enjoyed the pleasure of reading the whole book, we will

only call such witnesses as appear to have made a special study of each point.

1. *On Early Technical Training.*—Mr. LUCRAFT, the chairmaker, says: "Seeing some lads at work with the men in the carver's shop, I went to the bench of one about fourteen—he was carving a chair-back, of a mediæval form, from a working drawing. I expressed my surprise that one so young was found capable of carving so well, and was informed that boys at school are specially prepared for the trade they fancy, so that a boy about to be apprenticed to learn carving, is instructed in ornamental drawing, modelling, and designing." . . . Further, "I am bound to repeat that in the race we are nowhere. . . . Without the least doubt or hesitation, yet, with the most profound regret, I say that our defeat is as ignominious, and I fear as disastrous, as it is possible to conceive. We have not only made no progress since 1862, but it seems to me we have retrograded." He adds that the mere mechanical workman stands not the slightest chance with the workman of a cultivated taste. . . . "The art-workmen of France have a great advantage over us in England; in Paris they are surrounded by works of taste which none but the most obtuse can long remain uninfluenced by; their museums are central and numerous; they are surrounded by works they venerate and love, and their very nature gets impregnated with them. . . . Something must be done, or the working classes will be grievously wronged, and the whole nation suffer."

The lacemakers of Nottingham say—"We are unanimous in opinion, that French laces display a decided superiority in design and quality of material over the English goods." They express the hope "that the time is not far distant when some national system of compulsory education will be brought into existence to lessen the ignorance amongst us, and place our country on an equality of intelligence with other nations."

Messrs. KENDAL and CAUNT, hosiers, say—"We observed, as a rule, that the French people did everything with the greatest ease and tact, and without much labor, and always made a good finish of what they took in hand, so that nothing could be much improved after they had done with it. . . . On the whole, we are of opinion that the French have made great progress of late years, and that they are continuing to progress; and there can be no doubt that the superior education that is given to the working classes on the Continent, gives them an advantage, in some respects, over Englishmen; but there are no workmen so quick and so inventive as our own, as far as we are able to judge."

Mr. CONNELLY, stonemason, says—"The Frenchman's familiarity with art, and his early training in its principles, enables him to outstrip us; and as every building in Paris is more or less decorated with carving, you are at a loss to know how they get all their art-workmen; but the difficulty would not appear so much, if you could read the large placards, in French, which are posted up at the ends of the bridges, and other public places, informing workmen where they can be taught drawing and modelling every evening, free of expense. That he outstrips the Englishman, in this respect, does not, I feel certain, arise from the possession of an especial art genius, but because whatever of it is in him, is fully developed, and encour-

agement is given to its practice; and if English workmen are behind in this respect, it is not because art genius is deficient in our nature, but because it is not developed and encouraged sufficiently. . . . It is impossible to estimate the loss which is entailed upon England through the neglect of art culture in every department of our industry; through it we are reduced to mere 'hewers of wood and drawers of water' for other nations. The bulk of our manufacturing population is engaged in manufacturing goods to be sold cheap, or in producing raw materials for other people to work. . . . On a ton of iron, for the labor of which we get less than 1*l*., they are sure to put 100*l*. of labor before it leaves their hands."

2. *Artisans' Opinion on the Responsibility of a State for the Technical Education of its People.*—Mr. RANDALL, china painter, says—"When we come to high-class ornamentations in iron, earthenware, china, or glass, the superiority of French art is obvious. As long as we confine ourselves to geometrical forms in hammering, pressing, turning on the lathe, or printing on the surface, we have no difficulty in holding our own; but where an intellectualism is concerned, or a free educated hand is required in decoration, our deficiencies become apparent. The fault is less our own than our rulers', who have denied us education, or who have at least, given us nothing to fit us for our destination in life, but have left us groping in the dark, for ever feebly attempting to overtake lost opportunities. . . . As we heard an English workman, in another branch of trade, observe in Paris—there is much more credit to an English workman if he is clever, for a Frenchman has so many advantages, that if he only has moderate talents, he can scarcely help but be a good workman. He has excellent schools to give him a primary education, and, go where he will, there is something to educate his eye and elevate his taste. We have been groping our way in ignorant and bigoted security, and quarreling in which way education should be given, or denying it altogether, while other nations have been getting before us; and if this Exhibition have no other effect in England than to convince us of our deficiencies, it will have had its mission—so far as we are concerned. The present prosperity of this country is so unmistakeably interwoven with its manufactures, and the pre-eminence of these depends so much upon new adaptations, discoveries, and improvements, as to demand for the workers in iron, china, and other departments, the readiest and best educational training and enlightenment this nation can give them. It is not only idle, but suicidal, to dream of remaining where we are. We must strike out in new paths. We must advance with the world, or lose caste and trade together. How many men know anything at all of the materials with which they work? Yet such knowledge would sweeten daily toil, would open the treasure-house of thought, enable a man to convert to new uses, elements of force by which he is surrounded, and enrich the nation by adaptations and modes of economizing means now in use. Every man ought to have the means within his reach to enable him to become master of his art. With how many would a knowledge of geology, chemistry, geometry, drawing, and mechanics, smooth the path of daily toil, and render labor pleasant! Why should not the miner find compensating pleasure for the darkness and drudgery of the mine, in a knowledge of the gases by which he is surrounded, and of the minerals he is extracting

from their long resting-place in their subterranean storehouse? Let him know something of their history, of the changes and natural processes to which they were subject to bring them to their present state. How cheaply purchased is the pleasure of astonishment with which he might go on reading the hieroglyphics and paintings of Nature in the mine, interpreting at each stage, the emblems of earlier states and existences. Such an education would tell in many ways. All that we ask for is, that the State should fulfill efficiently unquestionable and admitted duties, rather than disputed ones. We have no wish for interference in a way that may weaken, in the least, a proper sense of individual responsibility, that may lessen the slightest individual energy, or offend the sensibilities of the strictest advocates for economy in the resources of the nation. Government for the future will—if there is any meaning or force in the late political changes—be more than ever the delegated power of the people to execute its will in legislating upon the admitted ‘Benthamite’ principle of the greatest happiness to the greatest number; and whilst doing so, it will undoubtedly seek to carry out the injunctions of the wise in all ages, from Solomon downwards, and supply education to those who are supposed to be deficient of the will, or the means of obtaining it. What we complain of, and what the country raising the taxes to support the present system complains of most, is that, being in the hands of the clergy, and under inspection by men drafted from them, it is used as a proselyting scheme, rather than an engine for fitting children for their duties in life. They are crammed with catechisms, Jewish pedigrees, with things pertaining to the past, which have no relation whatever to their future modes and pursuits of life, without being taught at all, the means by which their own wonderful and diversified faculties might be made to bloom in profitable fruition, so that both the individual, and the State itself, should be compensated—each having its positive welfare secured thereby.’

Mr. WINSTANLEY says: “I should like to see a number of institutions—they might be called colleges, or any other name. I would have them fitted up with a number of workshops for different trades, and one large room to be used as a lecture room, and for periodical exhibitions. I would have lectures delivered twice a week, by the best professors, upon different branches of art manufacture. There should be a well-stocked library and reading room, all on art manufacture. There should be schools attached, for drawing and modelling. Why I propose workshops is, because working men, in large towns, have a great difficulty in finding convenience to do anything for themselves, by way of improvement. . . . I would also have a committee, or council, established by Government, or the Society of Arts, that should receive working men presenting certificates for examination in their different branches, and grant them certificates according to their merits.”

Mr. MACKIE, wood-carver, reports: “I visited the *Ecole Impériale Spéciale pour l'Application des Beaux Arts à l'Industrie*. On that occasion there was an exhibition of the works of the students, and the number and variety were considerable and interesting. Conspicuous among the exhibits were some large models in clay. The Minister of Instruction had dictated the subject, and the following were the particulars given. A somewhat

large tympanum of a pediment, to have the head of a bull for a center, resting upon a shield, with accessories of boys and festoons of fruits and flowers. The best was a very successful interpretation of the order given. These studies were little more than good sketches in clay, but it was evident that the students were learning a most useful lesson, that would stand them in good service when they went forth into the world. . . . It seemed abundantly clear that the system pursued was simple and rapid, and that the teaching and practice produced valuable results. It seems to have great vitality, never being without deep and varied interest to the student, features that should distinguish every school, and without which they will assuredly fail in accomplishing the objects sought to be obtained. A visit to the exhibition of the works of the students of the *Ecole Impériale Spéciale de Dessin pour les Jeunes Personnes*, showed that the young ladies practised the same system with very profitable results. I am informed that the fees are little more than nominal, the main expense of the schools being borne by Government."

Mr. WHITING, in his special report, says on the subject: "The notion of the functions of Government entertained in this country would not be tolerated for a moment across the Channel, and it may be doubted whether our dislike to what is called special legislation—to legislation, that is to say, which proposes as a direct aim the improvement of the social condition of our people, has not its weak as well as its strong side. The constant difficulties experienced by individuals struggling alone to effect social reforms, often never aided by Government till the necessity of all aid has passed away, would seem to indicate that it has. From the view of the obligations of Government taken by the French people, it necessarily arises that instruction, both superior and elementary, has long held that recognized position under the protection of the State, which it is only just beginning to have here. A due provision for art education, for instance, is no favor on the part of the administration, but one of the conditions of its existence. In every town of any importance, in a manufacturing point of view, in every district of all the principal cities, there is to be found the art school, just as there is to be found the church or the baker's shop.

. . . It is not denied that similar institutions are to be found in our own country, but among us there is a very perceptible want of Government responsibility for the welfare of the schools, and they are not placed under the direct patronage of the officials of the district, who, in France, commonly attend to give a solemn character to the distribution of the awards. . . . In France, the Minister of Instruction has confided to him, as it were, a nation in a certain state of knowledge, and he is expected when he resigns the seals of office, to show that under his care that nation has steadily progressed; he may demand certain aid from the Government; his claims have a recognized place in the budget, and he is entitled to speak by the admitted importance of the interests over which he presides. It would be well if with us some such system could be devised, in place of that which gives us an irregular and spasmodic support to art, on the part of our public representatives, and which too often leaves its fate in the hands of only one or two well-meaning members of parliament. . . . What is above all wanted, is Government countenance

as well as Government aid. In France, as we have seen, the distribution of prizes, the opening of schools, is always made more or less a ceremony; the whole population of the district in which the school is situate, cannot fail to hear of what is going on. Publicity and *éclat* are given to all the proceedings, and the school immediately reaps the benefit. Of course, it is not to be inferred that the Government of France does everything for art education, and private individuals nothing. There is a considerable amount of private patronage, though to nothing like the same extent as among us; but it is always desirable to substitute for the irregular action of individuals, however well disposed, the order, economy, and persistent effort of an efficient body. . . . Let us now consider what the State does for education in France, both for primary instruction and for the special training acquired later, when an art or trade has been chosen. The system of primary instruction so very much resembles our own, both in the nature of the instruction given, and in the mode in which support is obtained, that no detailed account of it will be necessary. . . . But it is in the facilities for the higher education which ought to follow this primary teaching, where the inclination exists, that the great divergence between the English and the French begins. The ease with which a poor boy may obtain an entry to one of the imperial lyceums, or large public schools which prepare for the universities, and thence go up to the universities, which very properly are in the capital itself, and are all free, is something marvellous, and is only equalled by the excellent facilities of a like kind which exist in Germany. . . . The technical education of French workmen is of two kinds, elementary and advanced. In the first, the child having been early destined to a particular trade, is placed in an institution, where he serves a kind of preliminary apprenticeship to that trade, and where primary instruction goes hand in hand with the special training requisite to give him a more enlarged knowledge of his business. These technical schools for children are, however, only just beginning to be established, but the results in the last of which accounts were published, were in the highest degree satisfactory. The children are occupied, in all, about nine hours of the day. . . . In the morning they receive instruction of the ordinary kind, which is also given for an hour in the evening, and during the day they work, in every respect, as if they were apprenticed to private individuals, only that a certain portion of the time is devoted to teaching them the rationale of their art. . . . It has been stated that at present these institutions are very few in number, as hitherto they have only been regarded in the light of an experiment, so that only a very limited number of trades can be taught in them, but there is little doubt that as an experiment they have been successful, and that when their success shall have obtained general recognition, the Government will take measures for establishing them in all the principal towns.

An equally important tentative effort in the way of technical education has recently been made in the establishment, under government patronage, of an institution for the higher technical training of youths—that is to say, for the union of the highest theoretical with the best practical teaching in the manufacturing arts. This institution is somewhat in the nature of the *Ecole des Arts et Métiers*, only it is not so exclusively theoretical as

that, but aims at supplying a want long felt in France, namely, that of skilled foremen competent to superintend, or at least fully understand all the operations of a large manufactory.

Mr. ATKEN, of Birmingham, in his introductory report, which heads the reports of the Birmingham artisans, says: "Industry, formerly unaffected by foreign rivalry, contended only with small producers of its own nation, and then the competition was small. But free trade has thrown down the barriers, and the world is now one mighty, universal market. To be successful in this competition, our nation (England) must, therefore, put forward all its energies to educate in technical, and other schools, the present and coming generations; this was anticipated and clearly seen. Humboldt, many years ago, foresaw and predicted 'that the time was not far distant when science and manipulative skill must be wedded together; that national wealth and the increasing prosperity of nations must be based on an enlightened employment of natural products and forces.' Justus Liebig said: 'The nation most quickly promoting the intellectual development of its industrial population must advance, as surely as the country neglecting it must inevitably retrograde.' Peel saw this when he uttered the memorable words, 'If we are inferior in skill, knowledge, and intelligence to the manufacturers of other countries, the increased facilities of intercourse will result in transferring the demand from us to others;' and England's noblest Prince foresaw in International Exhibitions (which he was the first to inaugurate) the coming activity in things industrial; and in order to provide for the coming competition, he inaugurated, ere his lamented death, a system of industrial education."

In France, Prussia, Saxony, and the small State of Wurtemberg, &c., trade schools, in addition to others of a higher class, are in existence, and furnish the connecting link between the man of science who discovers, and the superintendent who is the medium, and who, educated in these schools, aids by his instruction and advice, the workman in bringing into visible shape the discovery of the man of science, rendering practically useful that which existed as an idea only. If, then, industrial and technical training has benefited other countries and states, in their industrial progress (which no doubt it has), it becomes the duty of every Englishman to see to this important point.

It is impossible to go through the evidence of the eighty-six representatives of the skilled workmen of England, without sharing their profound conviction:—1st. Of the pressing peril of the nation in regard to manufacturing pre-eminence. 2d. Of the culpability of the educated classes and of the executive Government, in having neglected the education of the people. 3d. That it is satisfactorily proved by these reports, that the reluctance of the working classes to receive superior technical education, to bear taxation for that purpose, and to accept the active agency of Government institutions and officials, (which reluctance has been put forward as an excuse for this neglect), has no existence, in fact, and that it is therefore the negligence, apathy, and reluctance of the governing classes and the Government which have hitherto alone prevented the organization of systematic technical education. 4th. It appears that until the mission to France, of the English artisans in 1867, they, the working men of England,

were not aware that the Governments of other countries had organized complete education in all trade crafts, from the lowest mechanical labor to the highest professional skill. 5th. Throughout the whole of these reports there runs a feeling of profound admiration for the system of education given in France; but they were evidently not aware that the educated men and statesmen of France had themselves become conscious that their system was far below the level of excellence of the educated German nations; that a royal commission, under the presidency of M. Béhic, formerly Minister of Commerce, had recently been occupied with that subject, and had arrived at the conclusion that the technical education of France, which our artisans admired in Paris, was, as a national system of technical education, extremely defective; and the investigations of this Commission prove, that if England is the worst educated of the first-class Powers of Europe, France is the second worst. 6th. There runs parallel with these convictions a consciousness that the English workman, is, by nature, the best of workmen, and that with systematic education, their works would excel those of competing nations.

In conclusion, I have to state my deep conviction that the working men of England expect and demand of their Government the design, organization, and execution of systematic technical education, and there is urgent need for it to bestir itself, for other nations have already five-and-twenty years' start of us, and have produced one or two generations of educated workmen. Even if we begin to-morrow the technical education of all the youths of twelve years of age who have received sound elementary education, it will take seven years before these young men can commence the practical business of life, and then they will form but an insignificant minority in an uneducated mass. It will take fifteen years before those children who have not yet begun to receive an elementary education shall have passed from the age of 7 to 21, and represent a completely trained generation; and even then they will find less than half of their comrades educated. In the race of nations, therefore, we shall find it hard to overtake the five-and-twenty years we have lost. To-morrow, then, let us undertake, with all energy, our neglected task; the urgency is two-fold,—one half of our youth, let us say, has received elementary, but no technical education: for that half let us at once organize technical schools in every small town, technical colleges in every large town, and a technical university in the metropolis. The other half of the rising generation has received no education at all, and for them let us at once organize elementary education, even if compulsory.

STATE OF SCIENTIFIC INSTRUCTION—1868-70.

I. REPORT OF SELECT COMMITTEE ON SCIENTIFIC INSTRUCTION—1868.

THE Select Committee ordered by the House of Commons on the 28th of March, 1868, "to inquire into the provisions for giving instruction in theoretical and applied Science to the Industrial Classes," after gathering information from witnesses representing the following bodies:—

1. The Department of Science and Art of South Kensington, the Committee of Council for Education, and the Government Colleges of Science and Naval Architecture.

2. The Universities of Oxford, Cambridge, London, and Edinburgh; The Royal College of Science, Dublin; Queen's College, Belfast; King's College and University College, London; and Owens College, Manchester.

3. The few secondary schools in which science has been for some time systematically taught.

4. The managers and teachers of science classes and mechanics' institutes receiving aid from the State, or supported exclusively by voluntary efforts.

5. The population engaged in the great staple industries carried on in the principal manufacturing towns and districts.

submitted a Report, drawn up by Mr. Samuelson, the chairman, together with the minutes of the evidence taken before them, to the House July 15, 1868, under two heads.

I. The state of scientific instruction of (1.) The foremen and workmen engaged in manufactures. (2.) The smaller manufacturers and managers. (3.) The proprietors and managers-in-chief of large industrial undertakings, and

II. The relation of industrial education to industrial progress.

The Committee find that the foremen are almost without exception selected for their superior natural aptitude, steadiness and industry, but labor under many disadvantages from the defective character of the instruction given in the elementary schools which they attended, and which is rarely sufficient to enable them to take advantage of scientific instruction when placed within their reach at a later period. The working-men generally have received at school only a little rudimentary knowledge, which is soon lost, because not passed under frequent review, or extended in obligatory supplementary schools, and that to them, the elementary scientific instruction now offered, or which may be offered, will avail nothing.

The smaller manufacturers and managers, having risen from the ranks of superior foremen and workmen, have had the same limited instruction, except a small minority who have been educated in the ordinary endowed and so-called commercial schools. They do not, and are not likely to, in considerable numbers, profit by opportunities of scientific or technical training. The best of them are men of practical routine.

The proprietors and managers of the great industrial establishments of England have in some cases risen from the ranks of foremen by indomitable energy of character, and have corrected the deficiencies of their early training by solitary reading, observation, and reflection, stimulated by the lectures and classes

of Mechanic Institutes; but in more numerous instances, they have had the advantages of the higher secondary schools, and very rarely of the Special Government School of Science or the great Universities.

The Committee, while they regard the industrial system of the present age as based on mechanical power, and to some extent on scientific knowledge, attribute its development in England to its stores of coal and metallic ores, to her geographical position and temperate climate, and the unrivaled energy and manipulative skill of her population, and do not seem to fear foreign competition, except in the direction of artistic taste in the designers of fabrics and the facilities of adaptation to new requirements in handicraftsmen, both of which can be secured to England by timely measures. They favor the extension of facilities of scientific and artistic instruction for those who occupy the higher industrial ranks, and the possession of the best elementary instruction by all workmen, as such instruction (scientific and elementary) will promote industrial progress, by stimulating improvement, preventing costly and unphilosophical attempts at inventions, diminishing waste, and obviating ignorant opposition to salutary changes. They favor the plan of governmental action and aid in the extension of educational facilities of every kind, and the establishment of scientific schools and colleges in the great industrial centers. Without such aid, or enforced obligation on municipal bodies, the experience of every country shows that such schools and educational facilities will not be provided; and that if provided by such aid, the country will be amply repaid by the increase of the general intelligence and prosperity which they will produce.

The Minutes of Evidence contain much information respecting existing schools and facilities for scientific instruction, of which we have already given a more systematic account, drawn in most instances from the same sources. The following Conclusions sum up the results of the inquiries of the Committee:

1. That with the view to enable the working class to benefit by scientific instruction it is of the utmost importance that efficient elementary instruction should be within the reach of every child.

2. That unless regular attendance of the children for a sufficient period can be obtained, little can be done in the way of their scientific instruction.

3. That elementary instruction in drawing, in physical geography, and in the phenomena of nature, should be given in elementary schools.

4. That adult science classes, though of great use to artisans, to foremen, and to the smaller manufacturers, can not provide all the scientific instruction which those should possess who are responsible for the conduct of important industrial undertakings. To all whose necessities do not oblige them to leave school before the age of 14, should receive instruction in the elements of science as part of their general education.

5. That the reorganization of secondary instruction and the introduction of a larger amount of scientific teaching into secondary schools are urgently required, and ought to receive the immediate consideration of Parliament and of the country.

6. That it is desirable that certain endowed schools should be selected in favorable situations for the purpose of being reconstituted as science schools, having in view the special requirements of the district; such schools to be rendered available to the surrounding districts, by the establishment of exhibitions open to public competition; so that the children of every grade may be able to rise from the lowest to the highest school.

7. That superior colleges of science, and schools for special scientific instruction requiring costly buildings and laboratories, can not be supported by fees alone, without aid from one or more of the following sources, namely, the State, the localities, and endowments or other benefactions.

8. That such colleges and special schools are most likely to be successful if established in centers of industry, because the choice of such centers tends to promote the combination of science with practice on the part both of the professors and of the pupils; and to enable many to attend them to whom the expense of living at a distance from home would otherwise be an insuperable barrier.

9. That the provinces of England, especially the agricultural districts, have not received a sufficient proportion of the State grants for scientific education.

10. That those provinces of England are entitled to such a modification of the public grants as will afford them increased aid, supplementary to the funds which they may raise in their own localities for the purpose of promoting scientific instruction. The grants of money from the national exchequer for local scientific instruction should be chiefly designed to promote local activity, and a better use of resources otherwise available, and should be regarded as occasional or temporary.

11. That some slight addition to the emoluments of science teachers would probably tend materially to promote the establishment and permanence of elementary science classes.

12. That the provisions of the Public Libraries and Museums Act should be altered so as to enable public bodies to levy a slightly increased rate for scientific purposes.

13. That the managers of training colleges for the teachers of elementary schools should give special attention to the instruction of those teachers in theoretical and applied science, where such instruction does not exist already.

14. That the teachers in elementary day schools should be paid on results, for teaching science to the older scholars, in the same way as payment is now made for drawing in such schools. That the education of higher science teachers should be encouraged, by the granting of degrees in science at Oxford and Cambridge as at other Universities, and by the opening of a greater number of fellowships to distinction in natural science as well as in literature, and mathematical and moral science.

15. That a more intimate connection between the various Government institutions for scientific instruction in London would increase the efficiency of each of those institutions, and that the constitution and management of those institutions and their future relations to each other requires further investigation."

II. CONFERENCE ON TECHNICAL EDUCATION.

By appointment, and in pursuance of an invitation addressed by the Council of the Society of Arts to the Mayors of Towns which are the principal seats of manufacture, to Presidents of Chambers of Commerce and Agriculture, to Officers of all Societies, City Companies, Institutions in union interested in education or art-workmanship, to Inspectors of Schools, Factories, Mines and Collieries, Professors of University, Kings, and other Colleges, to all educational examiners, all jurors of the International Exhibition of 1867, all persons conspicuous in the school movements of the day,—the largest Conference, and for educational experience and practical scientific character the most influential, ever held in Great Britain, assembled in the Society's Great Room on the 23d, and by adjournment, on the 24th of January, 1868. After a short Address by the Chairman, William Hawes, M. P., the following Resolution, with four others to give it effect, was introduced by Prof. Lyon Playfair, and seconded by Earl Russell:—

Resolved, That to establish and maintain a system of technical education adequate to the requirements of Arts, Manufactures, and Commerce in the United Kingdom, the three following educational reforms should be effected:—(1.) In the universities, grammar schools, and other educational institutions for the upper and middle classes of society, instruction in science and art should be placed on the same favorable footing as other studies; (2.) Efficient means of primary and secondary instruction should be brought within reach of the working classes every where, and encouragement should be given to the study of the elements

of science and art in the upper classes of all primary schools which receive aid from Government; and (3.) Special institutions for technical instruction, including museums, adapted to the wants of the various classes of society, and to the industries of the country, should be established and maintained in the United Kingdom.

This Resolution was spoken to, by upwards of twenty persons (Earl Granville, Prof. Huxley, Sir James K. Shuttleworth, J. Scott Russell, Messrs. Dixon, Samuelson, Bruce, Professors Rogers, Jenkin, etc.), all looking at the subject from different stand-points, as to locality, occupation, and institutions, but all impressed with the necessity of early and thorough action in the premises.

To mature a plan and bring the action of the Conference directly to the notice of the Government, the Society was authorized to appoint a Standing Committee of sixty members, which, after discussion of subjects, referred the same to a Sub-committee of twenty members, (among others T. D. Ackland, W. Hawes, B. Samuelson, *Members of Parliament*; Professors Miller, Huxley, Frankland, Jenkin, Lovi, Voelcker; J. Scott Russell, Esq., Rear-Admiral Ryder, General Coddington, Archbishop of York), who, after twenty-six meetings, agreed on a Report which was drawn up by Prof. Fleeming Jenkin, the substance of which is expressed in the following propositions:—

It is desirable that Government should encourage systematic scientific instruction by the following measures:—

1. By adopting the recommendations of the Schools' Inquiry Commission, for the introduction of the teaching of natural science into all secondary schools, and for establishing new science schools of the first grade, which should be on all points on a footing of equality with the endowed classical schools.
2. By coöperating with universities and colleges in holding examinations, which are or may be established for the purpose of conferring certificates or diplomas in connection with systematic studies, intended to educate civil engineers, mechanical engineers, officers of the mercantile marine, metallurgists, miners, naval architects and marine engineers, architects, merchants, chemists and agriculturists.
3. By giving some official value to those certificates or diplomas, such as allowing certain diplomas to represent a given number of marks in competitive examinations.
4. By putting at the disposal of the leading colleges which give methodical courses of scientific instruction, and diplomas of recognized value, a limited number of nominations annually.
5. By assisting old and new endowments where local subscriptions or donations prove the value set on the instruction proposed or given.
6. By instituting night classes for workmen in connection with all new scientific endowments, with access to a library.
7. By providing free libraries suitable for the use of the students in night classes generally.
8. By providing suitable meeting-rooms for night classes organized among workmen, for the purpose of obtaining scientific instruction.
9. By according liberal prizes to workmen for excellence in mechanical drawing.
10. By taking steps to extend and improve primary education.

It is desirable that colleges should encourage systematic scientific instruction by the following measures:—

1. By instituting methodical courses of scientific teaching adapted to students intending to enter a profession or business among those which have been enumerated above.
2. By the establishment of diplomas, corresponding to the several courses of study in conjunction with Government, and with the leading institutes belonging to each profession.
3. By the establishment of fellowships and scholarships in connection with those diplomas.

It is desirable that the leading civil and mechanical engineers, architects, merchants, ship-owners, chemists, manufacturers, and agriculturists, should encourage systematic scientific instruction by the following measures:—

1. By the creation of scholarships and fellowships in connection with those schools and colleges where methodical courses of instruction are given.
2. By coöperating in the examinations for diplomas.
3. By giving a practical value to these diplomas, such as would be evinced by the reduction of premiums to intending pupils holding such diplomas, and by attaching weight to the possession of a diploma when choosing among candidates for employment.
4. By granting distinct privileges, in connection with the professional institutes, to all holders of recognized diplomas.

To these propositions were submitted Courses of Study for Agriculture, and Gardening; Chemical Manufactures; Metallurgists; Miners; Civil Engineer; Mercantile Marine; Naval Architect, and Marine Engineer; Mechanical Engineer; Architect; Merchant—drawn up by experts in each department.

DRAWING IN PUBLIC SCHOOLS—GENERAL AND SPECIAL.

LETTER OF COMMISSIONER OF EDUCATION.

The following letter was written in reply to a Circular from a Committee (D. H. Mason, J. D. Philbrick, G. G. Hubbard, J. White) of the Mass. Board of Education, dated Boston, Dec. 27, 1869:—

DEAR SIR:—At the last session of the Legislature of Massachusetts the following Resolve was passed:—

Resolved, That the Board of Education be directed to consider the expediency of making provision by law for giving free instruction to men, women and children in mechanical drawing, either in existing schools, or in those to be established for that purpose, in all towns in the Commonwealth having more than five thousand inhabitants, and report a definite plan therefor to the next General Court. [*Approved, June 12, 1869.*]

It is presumed that the term "mechanical drawing," as used in the Resolve, is intended to comprise all those branches of drawing which are applicable to the productive or industrial arts.

In the investigation of this important subject, it is deemed desirable to procure the opinions and views respecting it, of such persons as are most competent to consider it from different stand-points. You are therefore respectfully requested to favor the Board of Education with your observations on the matter, under the following topics:—

1. The advantages which might be expected to result from the contemplated instruction in mechanical or industrial drawing.
2. The course and methods of instruction appropriate for the objects in view.
3. The models, casts, patterns, and other apparatus, necessary to be supplied.
4. The organization and supervision of the proposed Drawing Schools.
5. The best means of promoting among the people an interest in the subject of Art-Education.
6. Any remarks relating to the subject, not embraced in the foregoing topics.

OFFICE OF EDUCATION, WASHINGTON, Jan. 4, 1870.

Messrs. Mason, Philbrick, &c., Committee:—

GENTLEMEN:—To the several topics of your communication of December 27th ult., I reply as follows:—1. In respect to "the advantages which might be expected to result from the contemplated instruction in Mechanical or Industrial Drawing;" for thirty years I have advocated the introduction of Drawing, as a regular and indispensable branch of study in public schools of every grade, as a part of general as well as special culture, for the training of the eye and hand, of the conceptive faculty, and the appreciation of the beautiful in Nature and Art. If we are ever to have a system of Industrial as well as of Art education, or if any provision is to be made for the future occupation of the mass of our pupils in the

public schools, *Drawing must be introduced as the very alphabet and key to the whole scheme.* No one power, after the ability to read, write, and cipher, can be made more pleasurable and useful, both in its acquisition and manifold applications. No acquisition can introduce its possessor more directly into the region of the beautiful, the true, and the good, both intellectually and morally, or prove so directly useful in every mechanical occupation, and to the teacher in the work itself of instruction in natural history, natural science, geography, and other studies.

2. "The course and methods of instruction" in Industrial Drawing, must depend to a great extent on the class of schools into which it is to be introduced; although the first principles are as applicable to one school as to another. Your inquiries, addressed as they will be, to practical teachers in different parts of the country, wherever a beginning has been made in this department,—to the Professors of Drawing in the School of Design of the Lowell Institute, and in the Institute of Technology, Boston; to Professor Woodman of the Chandler Scientific School of Dartmouth College; to Professor Gladwin at the Worcester Technical School; to Professor Bail in the Hartford and New Haven Schools; to the Professor in the School of Design for Women of the Cooper Union New York; to the Professor of Drawing in the Public Schools of Cincinnati, and other practical teachers, will secure responses which will at least give you the results of the experience thus far reached in our own country. But, as the subject is new with us, we can profitably turn to the schools and the experience of other countries, and learn how the problem of instruction in Drawing, both in its introduction and in its modifications to adapt it to the different industries, has been solved. To aid you in this branch of your inquiry, I will send you as soon as Congress shall take action on its publication, a "*Special Report on Scientific and Industrial Education; or an account of the Systems, Institutions and Courses of Instruction on the Principles of Science, applied to the Arts of Peace and War.*" In this document, a volume of 800 pages, you will find schemes of Industrial instruction in different countries, and in more than one hundred schools of different kinds and grades, from the Polytechnic to the Sunday and Evening school and class. In all of these schools much time, through the whole course, is allotted to Drawing. You will also find in the same report, several extended and elaborate reports and programmes on this subject.

In the chapter on France you will find a very able report by M. Ravaissou, Inspector-General of Superior Instruction, in the name

and behalf of a special commission created by the Minister of Public Instruction to consider the whole subject in its general as well as special bearings, its educational discipline and industrial uses. The suggestions and recommendations of this report were made the basis of the present system of instruction in Drawing, in all the Secondary Schools of France. In the same chapter, you will find the programme of instruction in this branch, in connection with a new course of study drawn up and prescribed by the Minister of Public Instruction, for all the *Secondary Special Schools* which have been established within the last three years, as one of the results of the governmental inquiry into technical education, as well as a valuable equivalent for the old classical training. You will also find the methods pursued in the government Schools of Art, the *La Martinière* at Lyons, the report and action of a committee of the municipal authorities at Paris with reference to the introduction of Drawing into all the public schools of that city, and the results of a conference of teachers and managers of Art schools in Paris in 1869 on the methods and management of this class of schools.

Under the head of Belgium, where a system of instruction in Drawing in reference to national industries as well as to the fine arts, technically so-called, has existed for a century, you will find the course prescribed for the Academies and Schools of Design, for the support of which the government makes an annual appropriation of over \$50,000, as well as that in the industrial schools and apprentice workshops, which are aided by the State and the local authorities, both municipal and provincial. For the encouragement of Art, this little kingdom of about five millions, appropriated more than \$200,000 in 1868. For the advancement of this study of Drawing, both in the higher and elementary schools, a conference of directors and teachers of Schools of Art, was held in Brussels in 1869, the proceedings of which will be found in the same chapter.

In the chapter on Prussia, you will find the regulations for instructions in Drawing, drawn up by the Minister of Public Instruction in 1831, and revised and re-issued in 1863, "after taking the advice of the professors in the Royal Academies in Berlin, Dusseldorf and Königsberg, and of the provincial academic Councils, and several teachers of long experience," in reference to the requirements of Art and Industrial education, for the different classes in all the Secondary, Polytechnic and Trade Schools in the kingdom. To this programme I have appended a valuable paper on the best plan of giving instruction in Drawing in common schools, prepared by Dr. Hentschel, an eminent teacher and writer on education.

You will find much to interest and instruct you, not only in the

special objects of your inquiry, but in the whole subject of technical education, in the chapter on Wurtemberg, a kingdom in which elementary education is more nearly universal than in any other country of the same population in the world, and in which a most thorough and comprehensive system of Scientific and Industrial schools is in actual operation, in addition to an excellent system of general public schools, embracing all classes, from the Infant school to the University. In this chapter I have introduced a special report of the Minister of Education, on the details and results of the plan of instruction in Drawing, introduced into all the popular schools of the kingdom—the common, real and trade schools,—for the avowed purpose of bringing the mechanical and manufacturing industries of the country up to the standard of France, Belgium, Bavaria and other countries which have, of late years, done much for the artistic training of their workmen.

I would especially call attention to the manner in which the teachers of common schools in Wurtemberg are trained and encouraged, in order to give this instruction, both in their own, and in what are called the *Trade Improvement* schools, of which there were (in 1868) 122 in different parts of the kingdom.

The progressive development of Art and Science in England, since the first parliamentary action on schools of design in 1837, down to the creation of the Department of Science and Art, in 1853, and the appropriation in 1869 for its service of £167,591; and the movement not yet consummated, in behalf of technical schools, will suggest many points of practical importance in your inquiry, in regard to the establishment of the same or a similar system of Drawing and Designing for manufactures in Massachusetts. This system, in 1869, including 107 Schools of Art with 20,060 pupils, and the grand total of persons taught Drawing through the agency of the department, was 120,928. In the account which I shall present of the present state of this movement in England, so as to include special technical instruction beyond the arts of design, I shall introduce the testimony of many manufacturers and capitalists, as well as the observations of engineers and committees as to both the necessity of this instruction and the best modes of introducing and extending it, which may prove serviceable in any enlargement of your plans.

3. As to "the models, casts, etc., necessary to be supplied," you will find in this report several lists of such as have been found most useful in similar instruction in the different European schools, and the modes in which they have been multiplied and furnished to the schools. Copies of all can be very cheaply obtained by application to the proper governmental authorities having charge of this sub-

ject, in Wurtemberg, France and England; and from them a selection can be made, adapted to the wants of your own State and manufactured under your own auspices, so as to be supplied at cost.

4. The details of "organization and supervision," should be committed to a special committee, acting under the general direction of the Board of Education, of which committee the secretary of the Board should be a member, and also one or more of the professors of this branch who should be charged with the duty of frequent personal inspection, and furnishing information and aid in organizing classes, procuring teachers, and obtaining the necessary equipment.

5. "The best means of promoting," or at least an efficient means "of promoting among the people, an interest in the subject of Art education," will be to make an exhibition of the results of this teaching, in one good school in each of the different counties; as one good school in a county will be the best argument that can be addressed to the people of other towns in the same county, in behalf of the introduction of this new branch of instruction.

6. The success of the whole scheme will depend: *first*, on the selection of competent teachers; *second*, on the training of the students at the normal schools in the best methods of teaching Drawing; and for this purpose a special term should be given them for prosecuting the study, in addition to the daily practice during their connection with the school; *third*, the selection of the proper models, casts and patterns, which should be made by the State committee and furnished to the several schools without cost, or at least at a reduced price; *fourth*, an annual exhibition of the results of this teaching, at some central point in the county, for example at the meetings of the Agricultural Societies, Teachers' Institutes, and County Associations; *fifth*, in frequent appeals, oral and printed, to the public on the relations of Drawing, and instruction in science to the industries of the State; and finally in some central Museum of Industrial Art in Boston, which, I trust, will ere long equal the *Conservatoire* of Paris, the Industrial museums of St. Petersburg, Berlin and Stuttgart, and the South Kensington Museum of London.

Should you think the distribution of any of the chapters above referred to, will promote the object contemplated in your appointment, I will have them struck off for your use.

Yours respectfully,

HENRY BARNARD.

NOTE.—Since this Letter was written the printing and distribution of all or portions of the Report as a public document is no longer in his control, but as the document itself was prepared by the author before his connection with the office, and as the plates were cast at his expense, he will issue a new edition of the whole with additions, and also of separate chapters, if ordered.

SPECIAL EDITION.

EUROPEAN EXPERIENCE IN TECHNICAL SCHOOLS.

At the request of several teachers of Drawing, and earnest workers in the field of "*Technical Education*," or of special scientific instruction applicable to the various industries of the country, several of the chapters in "*Technical Education*" referred to in the Letter of the Commissioner of Education (pages 251-255) will be bound up with the "*Account of Special Instruction in Great Britain*," and forwarded to order. Price \$3.00. (500 pages.)

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NOTICE.—Number 24 National Series (Number 69 Entire Series), will be issued in July, and sent to subscribers in advance of the regular month of publication, to meet the convenience of the Editor, whose health requires a temporary absence from the country.

I. MANUAL LABOR AND USE OF TOOLS.

AMERICAN EXPERIENCE.

Various attempts have been made in this country to combine manual labor with school work, originally for its immediate economical and hygienic results to the pupils, but not without reference to their future occupations. In the organization and development of our Agricultural and Mechanical Arts Colleges, and Technical Institutes, of which we are likely to have many in the great centers of mechanical and manufacturing industries, the value of this element, in its economic, pedagogic, and professional bearings will be tested under a variety of conditions. We propose to gather up this experience.

FROM PRESIDENT THOMPSON—WORCESTER INSTITUTE.

The causes of failure in efforts hitherto made to combine manual labor with school-work are not hard to find. These efforts have proceeded from an imperfect comprehension of the true relations of this element in technical training, or else have not been accompanied by an adequate investment of capital. In the one case the result has been that the attempted work has degenerated into play, and in the other, pecuniary disaster. In either case mortification, disappointment, and distrust of the scheme have inevitably followed the failure. But the fact that some of the most successful and sagacious manufacturers and business men, as well as many able educators, continually recur to this idea as of primary and vital importance in technical education, shows that it is a problem worth much toil to solve.

What is wanted is a system of training boys for the duties of an active life which is broader and brighter than the popular method of "learning a trade," and more simple and direct than the so-called "liberal education." That is, to put it bluntly, boys must have a good education based on the mathematics and the physical sciences, and know enough of some art or trade to enable them to earn a living when they leave school. It is clear that schools in which this result is reached must be essentially new, and that the plan of instruction must involve some manual labor. The advocates of this system do not pretend that it is adequate to all the intellectual wants

of the century or the country, but they claim that it meets a want long and widely felt.

I only propose now to point out what safeguards have been placed against failure from neglect or from pecuniary disaster in the scheme now on trial at Worcester, and what results are hoped for.

Practice in Worcester Technical Institute.

Manual labor goes under the name of Practice. It is subjected to three conditions. First, that it shall be a necessary part of every week's work. Secondly, that it shall be judiciously distributed; and thirdly, that the students shall not expect or receive any immediate pecuniary return for it.

At the middle of the first year every student chooses some department, under the advice of the instructors, and devotes ten hours a week and the whole of the month of July to practice in that department until his graduation—that is, for two and a half years. The time *ought* to be three and a half years at least. Boys who choose architecture work out problems; those who select chemistry work in the laboratory; the civil engineers, at field-work or problems in construction; the mechanics, in the shop; and the designers at problems in design. About one-third of the students are mechanics. Since no serious difficulties occur in any department but this, let us confine attention to the shop. In order to understand this clearly it must be premised that all the students spend eight hours a week in drawing during the three years course, and that shop-work serves the double purpose of practice and of exercise. Attention is exclusively confined during the first year's drawing-time to free-hand work. Such discipline of the sense of form and proportion is secured in this way, and so much dexterity in developing various forms is acquired by the students, that it is entirely fair to reckon the time spent in free-hand drawing as so much time devoted to learning the mechanic's trade. The shop-work is assigned to Tuesday afternoon and Saturday forenoon, *four hours* each, and Thursday afternoon two hours, for the Senior and Junior classes. The time for the middle class is distributed in the same way, but falls on different days. Every student is required to keep to these hours. The shop is equipped, like any machine shop, with machinery and tools for manufacturing machinists' tools in one room, and for doing all sorts of wood-work in another room. A full quota of skilled workmen are constantly employed, so that, *as a shop*, it is completely independent of the students. When they enter it they immediately set about doing what the workmen have been doing, and these in their turn

either act as instructors or work on where they are most needed. The boys are advanced as fast as possible. They are not kept at cleaning castings and doing the drudgery of the shop any longer than is necessary to teach them how to do it. They are thus relieved of one hindrance to apprentices, *in general*, who are required to do all the rough work of the shop, on the ground that in this way the owners can get some compensation for the subsequent labor of teaching them. The students, therefore, have three advantages, viz: the discipline and culture of free-hand drawing, careful distribution of their time, and relief from all unnecessary drudgery. To these should be added the consideration, which far outweighs them all, that the boys come to their work with the perceptive faculties, the reason, the judgment, and the taste all under constant and careful training in school. Theory and practice accompany and supplement each other, and both may presuppose the actual possession of the elements of all knowledge. With these advantages it is hoped that the boys who graduate will be as skillful mechanics as ordinary apprentices who have served three years in a shop, with the immense additional advantage of educated faculties.

Now it is clear that the number of apprentices likely to be in the shop under these circumstances is so great, that its business prospects must be seriously dimmed. To offset this disadvantage, Hon. Ichabod Washburn, who gave the shop to the Institute, provided the building and its equipments (which by the Act of Incorporation are free of tax), a fund of \$5,000 to be expended for stock, and the interest of a fund of \$50,000 to provide for contingencies.

A very serious objection to "trade-school" and "manual-labor departments," both at home and abroad, has been that boys had not an opportunity to see or to attempt the best kinds of work. Miscellaneous jobbing and slatternly work are not the models for a boy to study, nor are second rate workmen his proper instructors. *Nothing is too good for a boy.* The popular notion is the exact reverse of this. How far the determination on the part of the superintendent that nothing but first-class work shall ever be done at the Washburn Machine Shop can be carried out, remains to be seen. The speed-lathe designed and built there, took the gold medal at the Baltimore Fair in 1869, and both the engine- and the speed-lathe took first premiums at the Fair of the American Institute held last autumn in New York.

The whole scheme must be regarded as an experiment in American education, which, at the present stage, is sufficiently promising to warrant its farther prosecution.

FROM PRESIDENT WHITE—CORNELL UNIVERSITY.

SIR:—In answer to your request for information regarding the progress of our effort to unite mental and manual labor, I would say that in the address delivered at the inaugural exercises of the University, I stated the problem as I understood it, and as that statement was virtually accepted then, and has been acted upon since by trustees and faculty, I reproduce it here :

"Another part of our plan is to combine labor with study. The attempt is to have this a voluntary matter." It is not believed that forced labor can be made profitable either to the institution or to the student. Voluntary labor corps will be formed, and the work paid for at its real value,—no more, no less.

"The question is constantly asked,—Can young men support themselves by labor, and at the same time, carry on their studies? The answer, as I conceive it, is this,—Any student well prepared in his studies, vigorous in constitution, and skilled in some available branch of industry, can after a little time do much towards his own support, and in some cases, support himself entirely. At present the young carpenter or mason can save enough on the University buildings during half a day to carry him through the other half, and it is hoped that as our enterprise develops, young men of energy and mechanical ability can do much toward their own support in the shops to be constructed, and upon the University farm, under the direction of the Professors in the College of Agriculture. In the latter, especially, there is hope for the most speedy solution of the problem, and it is believed that young men, skillful and energetic in farm labor, may, by work during the vacations and in some of the hours spared from study during the remainder of the year, accomplish mainly or entirely their own support.

"Still I would avow my belief that the part of this experiment likely to produce the most satisfactory results is that in which labor itself is made to have an educational value. In the careful designing and construction of models and apparatus under competent professors, the artisan, who has already learned the use of tools elsewhere, can acquire skill in machine drawing, knowledge of the adjustment of parts, dexterity in fitting them, besides supporting himself, at least in part, and supplying models to the University cabinets at a moderate rate. Master mechanics thus educated are among the greatest material necessities of this country. The amount annually wasted in the stumblings and blunderings of unscientific mechanicians and engineers would endow splendid universities in every state. One of the noblest aims of this institution is to thus take good, substantial, intelligent mechanics and farmers from the various shops and farms of the state, and give them back fitted to improve old methods, invent new, and generally to be worthy leaders in the army of industry.

"With *unskilled* labor the problem is more difficult. Students, unskilled in labor, agricultural or mechanical, may do something towards their own support where there is quickness in learning, and great physical vigor. Still the number of such cases will be found, I think, comparatively small. The chances in this direction for young men possessing no trade, or a constitution not robust, are few."

It will be seen, then, that our effort has been twofold. *First*, To give as much remunerated labor as possible to students who wish to support themselves. *Secondly*, To establish a system of labor which shall have a decided educational value. That while we naturally keep these two divisions apart in the clear statement of a theory, they blend in various degrees in practice, as will be seen in the following statement.

In every branch of labor needed by us which could be carried on by students, we have employed them during the past two years. These branches of labor may be classified as follows :

1. *Agricultural and Farm Labor*.—A farm of two hundred and fifty acres is directly attached to our establishment. A market for most of its products is afforded close at hand by the boarding-hall, where are about one hundred and seventy-five of our professors and students. On the farm, various crops are

raised. A vegetable garden has been begun, and a large number of horses, cattle, sheep, and hogs are kept, for draught, milk, or slaughter. To carry on this farm, fifteen to twenty students have been employed at remunerative rates, and averaging three to four hours a day during term time,—on the whole, with satisfactory results.

Of course, a disturbing *element* in this use of student-labor, was the fact of its interruption for study and recitation, but by careful management, *throwing as much as possible* into the early morning hours, or into the afternoon, and by the fact that the vacations come opportunely as regards haying and harvesting, this difficulty has been very nearly obviated.

As to the intrinsic character of the labor, there are defects and excellencies, easily understood. Well-managed, it can be made satisfactory, but it cannot be made quite so economical as the regular labor of well-selected farm laborers.

2. *Labor on the University Grounds.*—The grounds about the University buildings embrace some very striking natural features and are very uneven in surface; much labor in *grading* has therefore been required to make them available. Students, in numbers varying with the season, have been employed at this, and the price paid has been fifteen cents an hour.

As the result of our experience thus far, I would state my belief, that for the *heavy* work of grading and cutting, it is cheaper and probably more satisfactory to employ day laborers of the ordinary sort. Young men engaged in their studies, and not yet physically matured, are here at a disadvantage, but in the lighter parts of the work, requiring taste and skill, students, under proper direction, have done admirably.

A small corps that worked during the last summer vacation under my own guidance, in opening paths and bringing out beauties in those parts of our grounds bordering upon the Cascadilla Creek, deserves honorable mention.

3. *The Labor of Carpenters and Joiners.*—This has been successful. The master carpenter of this division of the labor corps is a student of the Sophomore Class in the College of Engineering, and I take pleasure in saying that he is the best and most competent master carpenter with whom the University has had to do. A force of about fifteen student-carpenters, under his direction, have done much in finishing off our North College and Laboratory buildings, in erecting some temporary farm structures and the building for the veterinary department, and in laying plank walks, building the Upper Cascadilla bridge, and making the ordinary repairs of buildings, furniture, tools, &c. These young men work on the average from three to four hours a day through the week, and all day on Saturday, and mainly support themselves in this way.

In the main our experience shows us that student-labor of this sort is as good as any other. The main drawback is the difficulty of discharging workmen of this sort,—worthy young men dependent on their own exertions for support,—when but little work is needed; and another difficulty is found whenever an emergency suddenly arises and a large amount of work must be rapidly done. The impossibility of student-carpenters working more than three or four hours per day is of course fatal to rapidity in execution of considerable jobs. But by the exercise of forethought and care, these difficulties are greatly reduced.

4. *Labor in the University Printing Office.*—At this, about sixteen to eighteen men are employed in type-setting, press-work, attending engine, &c.

The office has been carried on by students entirely; all, from foreman to the youngest pressman, carrying on their studies in various classes and departments.

Besides doing a very large amount of printing for the University, in the way of labels, cards, notices, schedules, analyses of lectures, examination papers, blanks of all sorts, and the annual catalogue, it has printed for private parties, a text book in Analytical Chemistry, a German Reader, and an extended Syllabus of Historical Lectures. It has also filled a large order for job work.

On the whole, this has been thus far the most successful branch of labor pursued by our students. It attracts an excellent class of young men. Study of every sort seems to work in with it admirably at all points, and it is not improbable, that with the facilities afforded by a large faculty for proof-reading and elaborate press-correction in various sciences and languages, a printing house may be built up here which will be an honor to the University and the country. The labor of the students in this department has been found remunerative to them, and, on the whole, satisfactory to the University.

4. *Work in the Shops of the Mechanic Arts Department.*—A large number of cutters, planers, drills, and other tools for working in wood and iron, have been procured; but the want of suitable accommodation has been a great hindrance, so that with the exception of the construction of some models and apparatus for the Departments of Physics, Civil Engineering, &c., little has been done.

Fortunately, that hindrance is now in process of removal. The Hon. Hiram Sibley, of Rochester, himself in early life a mechanic, is now erecting for the University a noble building of stone to contain the engine-room, brass-foundry, machine-shop, printing-office, with press and composing-rooms, draughting, lecture, and apparatus-rooms for the departments of civil and mechanical engineering, &c. This building will be finished and ready for students at the beginning of the next University year, (September, 1871.)

In addition to this, another gentleman whose name is not yet announced, has pledged ten thousand dollars for apparatus, models, books, &c., bearing on these departments, and these, added to the large equipment already possessed by the institution, will make this department the best of its kind in the United States.

We already have orders for reproducing for various institutions some of our models and apparatus, and what has already been done in this direction on a small scale, by students working under the direction of the Professors in the Departments of the Mechanic Arts and Civil Engineering, encourages us greatly. Already some of the Ollivier models have been reproduced, beautifully and cheaply, and it is believed that the Schröder models, to exhibit mechanical motions, and bridge and roof construction, &c., &c., and the Race models of ploughs, as well as others of the same kind, can be easily produced.

Our plan is to call in a certain number of young mechanics, well grounded in an ordinary English education, and possessed of a good knowledge of the use of machines and tools, and to enable them to work in the machine shop at making models and apparatus. They will be required at the same time to make careful studies in mathematics, draughting, &c., &c., and if successful, they will be graduated as master-mechanics or mechanical engineers.

I must be pardoned for quoting here from an address delivered some time since by me before the State Agricultural Society, at Albany.

"For this department," i.e., the Department of Mechanic Arts, "I would begin by having in view *educational* manual labor. I would, to this end, begin with a workshop furnished with machines and tools for working in wood and metals. In this, under the direction of a Professor, who should be not only a thorough scientific man, but a practical mechanic, I would have such students as have proved themselves fit for it, make models, apparatus, implements, &c., in the furtherance of their studies.

"Say, for example, that the institution wants models to illustrate descriptive geometry, or combinations of wheelwork on different applications of steam, I would have students study the best designs, discuss them with their professors, make careful drawings, and then carry them out practically.

"If, for example, a model of a low-pressure steam-engine is wanted, I would have the student,—a young man who, having learned something of the trade elsewhere, now purposes to perfect himself, and make himself a master mechanic. I would have him study the best drawings of engines in Armengaud or other leading works; then make as careful drawings and as large, for his model as for a steamship engine; study the proper relations of parts as regards size and place; calculate closely the movement of valves; estimate power and work to be done; and then in this shop, I would afford him facilities to construct the perfect model thus designed.

"In this way, students would acquire, at the same time, the theory of machines, knowledge of their most approved construction, practice in drawing, judgment in adjustment of parts, skill in manual labor, and in many cases, make a model which could be sold for enough to repay, partially or entirely, the time and labor expended upon them.

"The institution itself would be thus able to purchase of its students for its cabinet, models, agricultural, and mechanical construction, more cheaply than it could import them, and at the same time aid meritorious and needy students. Do you not see, my friends, that even half a dozen master mechanics and mechanical engineers every year thus taught would be worth more to the State than a hundred half educated young men?

"This is the first legitimate thing to do. After that, if some simple branch of mechanical labor could be found, which would enable a large number of young men to support themselves by more unskilled work, whether at the simplest forms of cabinet or tool making, or the like that might be tried, but it should never be allowed to jeopardize funds designed for practical and scientific education."

6. *Labor, not of Educational Value in itself, but entirely for Self-Support, in Shops erected for the Purpose.*—From the first, I have opposed any interference with such an experiment by the *University*, and the trustees have acquiesced in such opposition. They have felt, with me, that such an experiment ought to be tried by private enterprise. Hence our honored founder is developing a plan from which he hopes success. Having purchased the right to the immense water-power of the river which skirts the northern boundary of the *University* farm, he purposes to afford facilities for the erection of shops where simple and easily manufactured articles of various sorts, such as cabinet-ware, boxes, shoes, &c., may be produced, partly by machinery, and partly by student and other labor. This plan awaits development.

7. *Student-Labor in various Positions to which Persons from the Outside World are generally called.*—Our library, already numbering 25,000 volumes, and the librarian having important duties as professor, we employ, instead of one assistant-librarian at full salary, from four to six under-graduates, filling out the day between them, and paid at the regular rate per hour. To a certain extent, the same policy is carried out in the janitor's work, in the care of the laboratory, in the writing in the offices of the president and business superintendent, and in the students' dining-hall.

The question will now be asked,—How well do students succeed in carrying on their studies, while thus giving time to work?

The simple answer is found in the fact, that the majority of the working students maintain the highest standing in their studies. Prize after prize has been taken by them over the heads of men not encumbered with manual labor.

It may also be asked,—How are the working students regarded by the others? Are they not looked down upon by the more wealthy and well-dressed?

The answer is found in the fact, that these working students are very gener-

ally regarded as the most desirable associates in societies, clubs, &c. It is very hard for a young man to be looked down upon out of class by young men who in class have to look up to him. Indeed, it is very nearly impossible.

So far have we, during these two years, developed this system. It is still an experiment, and environed by many difficulties. It has been found necessary to arrange our schedules of lectures, examinations, and recitations so that all come before 1½ o'clock P. M., leaving the afternoon to work and laboratory practice.

We have also had to make in favor of students in the labor corps, an exception to the rule requiring every student to carry on at least three studies steadily, and various difficulties have arisen, still we are reasonably satisfied with our success, and we shall press on. It should be constantly borne in mind that this system has been in operation but two years and three months, and that it has been but once, among many problems, pressed upon us.

I hope much from our attempt, still I would as yet hesitate to recommend any other institution to try the experiment. It remains to be seen whether the same labor, care, and expenditure, differently directed, would not produce results of greater benefit. But we have tried to do this and not to leave the other undone.

Before closing, permit me to notice a misapprehension of our efforts, both by parents, and young men who wish to support themselves, but are utterly incapable of any manual labor useful to us. I quote from the address above referred to :

"One father and mother brought their young gentleman, who could do nothing any where else. He had whittled out a toy, very simple to the eyes of the world generally; very wonderful to the eyes of his fond parents. On the strength of this toy, it was evidently expected by them that he could get an education in books by droning over them, learn the use of tools by playing with them, support himself while thus amusing himself, and mend his morals and manners while engaged in that branch of practical agriculture known as 'sowing wild oats.'

"Another young gentleman, city-bred, sickly, weakly; who had not the experience of any skilled labor; who had not the strength for any unskilled labor, wished to support himself by work while pursuing his studies; but when he discovered that work makes a man tired, wears his fingers, and soils his clothes, he withdrew, making the air vocal with his complaints.

"Another, with no available trade, no aptitude for labor, offered to favor the institution with his presence, if he could learn a trade, carry on his studies, and save enough to board, lodge, and clothe himself, beside sending twenty-five dollars a month home to his parents.

"These are actual cases, and types of many others.

"I repeat it, our duty is not to do such work as this. We are not to establish a reform-school, nor an intellectual alms-house. We should take sound, manly, capable young men where the farms, the shops, and the public schools leave them, and give them back to the country, strong to develop and increase the resources of neighborhoods, states, and nations. I repeat, this is to-day the most pressing *material need* of this land."

Into this attempt, we are fitting our system of voluntary student-labor. Our outlay upon it in all its branches, has averaged about ten to twelve thousand dollars a year, and I think it may be safely estimated that it has returned us, in valuable and necessary products, within a very small percentage of what the ordinary systems of labor would have given us, while it has attracted a considerable body of most earnest young men, and aided them in prosecuting studies from which they would otherwise have been probably deprived.

Very respectfully yours,

ANDREW D. WHITE, *President.*

TO HON. HENRY BARNARD.

PUBLIC INSTRUCTION IN SCOTLAND.

AREA—POPULATION—EDUCATION.

SCOTLAND, originally an independent kingdom, but since the union of the crowns of Scotland and England on the accession of James VI of the former, to the throne of the latter as James I, in 1602, and the act of Union in 1707, an integral portion of the kingdom of Great Britain, occupies the division of the Island north of the Tweed, Solway Frith, and the Cheviot Hills. It has an area of about 80,000 square miles, with a length of 217 miles, and a breadth ranging from 43 miles to 125, not including numerous islands which line its coast, and constitute no small portion of the whole area. - Out of 19,639,377 acres, only 4,438,187 are under cultivation. The population in 1861 was 3,062,294 distributed over three great divisions, differing in the natural configuration of the country, and the industrial condition of the people, viz. :—*First*, 1,487,276 in the Lowland Parishes : *Second* 80,000 in the Hebrides and Highland Parishes ; and 1,012,270 in 79 Burghs (Parliamentary and Royal) and 289,057 in 78 Towns having each 2,000 inhabitants and upwards. In each of these subdivisions the organization of public schools differ, and will require separate treatment.

PUBLIC INSTRUCTION.

Public instruction in Scotland is secured through three great departments, which may be called Elementary, Secondary and Superior. Although not legally so designated, yet the institutions in each have a legal basis, though not very closely defined and limited, and the whole is without any efficient system of local or state administration, inspection, or control.

1. **ELEMENTARY INSTRUCTION** is provided in institutions of various kinds, the core of which is the national Parochial system, which in its germ, existed as early as the Christian Church in Scotland, and which took its present shape in the acts of the Privy Council in 1615, and of the Scotch Parliament of 1633, and of the Church of Scotland in 1689. To these departments, although not exclusively, belong :

(1.) Parochial Schools which exist by operation of law in every parish, which together (917) cover the whole of Scotland outside of the boundaries of the burghs.

(2.) Side Schools, authorized by act of 1803, in parishes so situated

or so extensive that a single school can not adequately provide the elementary instruction for all the youth within their bounds.

(3.) Sessional Schools in the large towns, and burghs (each of which comprise one parish), which are managed by the minister and kirk Session, but may be regarded as belonging to the parochial system, in their class of pupils and studies.

(4.) Parliamentary schools, established since 1835, by an act of Parliament, by which the salaries of certain districts in the Highlands and Islands are paid out of a public appropriation.

To the elementary department belong a large number of non-parochial schools, such as (1.) the *General Assembly Schools*, of which there are 519 with 33,251 scholars; (2.) the *Christian Knowledge Society Schools*, of which there are 202, with 10,054 scholars; (3.) *Free Church Schools*, established under the Free Church Education Scheme in 1843, of which there are 617, with 48,860; (4.) *Episcopal Church Schools* of which there are 74, with 6,202 scholars; (5.) *Roman Catholic Schools*, of which there are 61, with 5,786 scholars; (6.) *Subscription Schools*; (7.) *Proprietary Schools*; (8.) *Private Adventure Schools*; (9.) *Endowment Schools*, including the Hospitals which have funds to the amount of £100,000.

II. SECONDARY INSTRUCTION embraces :

(1.) Burgh Schools, or Grammar Schools, established by the Council or municipal authorities of Burghs created by Royal charter.

(2.) Academies, or Institutions, both in and out of Burghs, founded by subscription, and managed by directors selected from the subscribers.

(3.) Parochial Schools with advanced classes. To this department belong a large number of Private Schools, some of which are exclusively *boarding* or *day* schools, or a mixture of both, but all of them having elementary classes; also the Hospitals or endowed boarding schools for special classes.

III. SUPERIOR INSTRUCTION is given in four Universities, which have close connection with the schools and classes of Secondary Instruction. To the above department may be added :

IV. SPECIAL AND SUPPLEMENTARY SCHOOLS AND AGENCIES.

For thirty years, the friends of a truly national system of public schools—comprehensive enough to embrace citizens of all creeds and of all localities, no matter how remote, or how scattered the inhabitants may be, and good enough to realize the wishes of all classes of society for the education of their children—without ignoring the many excellent features of the old Parochial and Grammar Schools, which have given to Scotland in spite of many natural disadvantages, a high place among the prosperous nations of modern Europe—have labored strenuously for a reorganization. Out of these efforts has issued an Educational Commission, appointed in 1866, composed of twenty eminent and competent citizens, with the Duke of Argyll as chairman, from whose successive Reports in six volumes, we draw in literal extracts (slightly modified in a few instances) the following account of the systems, and schools of every kind now in operation in Scotland.

I. SYSTEM OF PAROCHIAL SCHOOLS.

HISTORICAL DEVELOPMENTS.

Originally, the schools in Scotland were closely connected with the religious establishments of the country. Long before the Reformation all the principal towns had grammar-schools, in which the Latin language was taught; besides which, they had "lecture-schools" in which children were instructed to read the vernacular tongue. As early as the reign of James IV., a Statute, 1494, c. 54, ordained, under a penalty of twenty pounds, "that all barrones and freeholders" of substance should put their sons and heirs to the schools from six to nine, "and keep them there until they should be competently founded, and have perfect Latin." At this time the Catholic Church had authority over all teachers, who could not exercise their calling without the license of the Chancellor.

After the Reformation, the establishment and maintenance of schools became an object of constant and anxious attention on the part of the clergy. The First "Book of Policy" (or Discipline, drawn up by John Knox, on behalf of a Committee of the Reformed Church of Scotland in 1560-1) recommended that there should be a schoolmaster, "able to read the grammar and the Latin tongue," in every parish where there was a town of any reputation, and, in the landward parishes, that the reader or minister should take care of the instruction of the youth. In this book, and in the repeated applications to Parliament for restitution of the patrimony of the Church which had been seized by the nobles, the support of "schools" is uniformly one of the objects to which such funds are to be applied.

The nobles, however, notwithstanding the favorable inclinations of the Regent Murray, were powerful enough to resist the claim for restitution. But in the year 1567 the Reformed religion was established by law; and by an Act of the same year, c. 11, Parliament conceded to the Church their claim that the "superintendents or visitors" should have the cognizance of the teachers of youth. Then came the Act of 1592—"the great Charter of the Church"—re-enacting the Statute of 1581, which had ratified the Act of 1567, wherein it is declared that none shall be permitted to teach but such as should be tried by the superintendents or visitors of the Church. At this time, there was no legal obligation to support parish schools. But, as Dr. Mc'Crie says in his *Life of Melville*:—

As every minister was bound regularly to examine his people, it became his interest to have a schoolmaster for the instruction of the youth. At the annual visitation of parishes by presbyteries and provincial synods, the state of the schools formed one subject of uniform inquiry; the qualifications of the teachers were tried; and where there was no school, means were used for having one established.

A "common order" as to the rate of contribution to be raised for the salary of the teacher, and as to the fees to be paid by the scholars, was laid down and put in practice long before the Act of Council in 1618, which was ratified by Parliament in 1633. It is a mistake to suppose that the parochial schools of Scotland owed their origin to these enactments.

The Parliamentary Statute has indeed been eventually of great benefit. But it would have been a dead letter but for the exertion of the Church Courts; and, owing to the vague nature of its provisions, it continued long to be evaded by those who were insensible to the benefits of education, or who grudged the smallest expense for the sake of promoting it.

In 1616 the Privy Council directed, that "in every parish of this kingdom, where convenient means may be had for entertaining a school, a school shall be established, and a fit person appointed to teach the same, upon the expense of the *parochianis*, according to the quality and quantity of the parish." This Act of Council was ratified in Parliament by the Statute of 1633, c. 5, which is the first legislative enactment authorizing the establishment of parish schools. This Act provides that the Bishop shall have power, with the consent of the heritors, and most part of the parishioners, to impose a stent for the support of the school.

It was during the great civil war, however, that the foundation of the present parochial system was laid, for the Act of 1646, c. 46, though repealed at the Restoration, was re-enacted in the Statute which was passed in 1696, and is entitled, An "Act for settling of schools."

By this Act of 1696, it is ordained that "there shall be a school settled and established, and a schoolmaster appointed in every parish *not already provided*, by the advice of the heritors and minister of the parish." Under this Act the heritors are bound to provide a commodious school-house, and a salary not above 200 (£11, 2s. 2-8d.) nor under 100 merks (£5, 11s. 11-8d.) Each heritor is to be assessed in proportion to his valued rent, and is allowed relief from his tenants to the extent of one-half. If the heritors neglect or refuse to act, the duty of doing so devolves upon the Commissioners of Supply.

Under this Statute, enforced by the persevering and zealous exertions of the Church, Parish schools were erected in every parish in Scotland.

The salary, however, provided for the schoolmaster became in time inadequate, and difficulties occurred as to what heritors were entitled to vote for the election of schoolmasters, and as to the power of reviewing the judgment pronounced by Presbyteries in regard to their admission and deposition.

To remove these difficulties, the Statute 43 Geo. III., c. 54, was passed in 1803, and this has been succeeded by the 24 and 25 Vict., c. 107, in 1861. These Acts must be read together.

(1.) As to the schoolmasters' emoluments. By the Act of 1803, the salary of the schoolmaster was in no case to exceed 400 merks Scots (£22, 4s. 5d.); or to be under 300 merks (£16, 13s. 4d.) The salaries to be fixed between these two sums were to subsist for twenty-five years; and it was provided that thereafter the highest amount of salary should be equal to two chalders, and the lowest to one chalders and a half, the value of which is appointed to be fixed every 25 years, in the manner pointed out by the Statute.

These clauses are now repealed by the Act of 1861, which provides

that after Martinmas of that year the schoolmasters' salary shall not be less than £35 nor more than £70 per annum; and, that, where there are two or more schools in a parish, the minimum salary payable to the schoolmasters shall be £50 and the maximum £80 per annum. The precise amount of the salary is fixed by the heritors and minister.

In addition to their legal salary, the schoolmasters always receive the school fees. These are fixed by the heritors and minister.

(2.) As to accommodation. According to the Act of 1803, in parishes where there is not already a commodious school-house provided, or where there is no dwelling-house with a garden for the schoolmaster, the heritors must provide such accommodation. If they neglect or refuse to do so, or if the schoolmaster be dissatisfied with the accommodation provided, a remedy is pointed out by section 9 of the Statute; but in no case are the heritors bound to enlarge the school-buildings.

The school-house to be thus provided ought to be suitable to the size and circumstances of the parish; but the heritors are not obliged to provide a house of greater accommodation than two rooms, including a kitchen. The garden must contain at least one-fourth of a Scots acre, and be inclosed with "such fence as is generally used for such purposes in the district of the country where it is situated."

If no garden ground can be obtained without great loss or inconvenience, the heritors, with the sanction of the Quarter-Session, may make an addition to the schoolmaster's salary. "The expense of providing the school-house, dwelling-house, and garden, and supporting the same," is, by section 8 of the Act of 1803, to be defrayed by the heritors. According to Mr. Dunlop, "it seems somewhat doubtful whether the Quarter-Sessions have jurisdiction to compel them to do so;" but he adds that if this should be the correct construction of the Statute "the Court of Session would probably hold themselves entitled to compel them to do so."

But, according to the Act of 1803, in the case of extensive parishes, where two or more teachers are appointed under section 11 of the Act, the heritors are relieved from the obligation of providing any buildings or garden. The additional schools are known as *Side schools*.

According to the 17th section of the Act of 1861, where in any part it shall be necessary to provide a house for the schoolmaster, it is to consist of three apartments besides the kitchen.

By section 5 of the Act of 1861, power is given to the heritors to establish a female teacher, and in such case, a yearly salary of £30 may be added to the school assessment.

(3.) As to the election and qualifications of the schoolmaster. According to the Acts of 1696 and 1803, he is elected by the heritors and minister as one body. But, by section 22 of the Act of 1803, no heritor is entitled to vote at any meeting with reference to schools, "who is not a proprietor of lands within the parish to the extent of at least £100 Scots of valued rent appearing in the land-tax books of the county."

By the same section heritors may vote by proxy or by letter under their hand. In case the heritors fail to elect, the duty devolves on the Commissioners of Supply of the county within which the school is situated.

According to the provisions of the Act of 1808, the schoolmasters elect were examined and approved by the Presbyteries, and were required to sign the Confession of Faith and the Formula of the Church of Scotland.

The Act of 1861 abolishes these provisions as to examination. The parochial schoolmaster elect is now examined by examiners appointed by the University Court of each University; and for this purpose the schools are distributed into four districts, each of which is attached to one University. Each schoolmaster on passing is entitled to a certificate, which is conclusive evidence of his competency as such.

Instead of signing the Confession and Formula, the schoolmaster elect is obliged to sign the declaration contained in the 12th section of the Act 1861. But the only remedy for contravening this declaration is by the Secretary of State, at the instance of the Presbytery or heritors, appointing a Commission to inquire into the charges. The result of this inquiry may be to censure, suspend, or depose the schoolmaster.

(4.) As to his dismissal or resignation. The parish schoolmaster holds office *ad vitam aut culpam*. The Act of 1808 made certain provisions, by section 21, for neglect of duty, immoral conduct, or cruel or improper treatment of the scholars on the part of the schoolmaster. These provisions are now repealed. And, by the Act of 1861 (sect. 14), if the schoolmaster is charged with immoral conduct, or cruel or improper treatment of the scholars under his charge, the Sheriff has jurisdiction to inquire into such charges, and to pronounce judgment of censure, suspension or deprivation: and his judgment is final.

But if the schoolmaster is disqualified for his duties by reason of infirmity or old age, or if, from negligence or inattention, he has failed to discharge them, provision is made by the 19th section. In such cases the heritors are to apply for the report of one of H. M. Inspectors of schools, and if the report shall be concurred in by the Presbytery, and the charge shall be found proved, the heritors and minister may permit or require the schoolmaster to resign, or, in case of refusal, dismiss him.

Besides these provisions, there are various others providing for retiring pensions: particularly for the case in which the resignation shall not be occasioned by any fault of the schoolmaster (sect. 19). In this case a retiring pension of not less than two-thirds of the salary is provided.

(5.) As to management and superintendence. Presbyteries are empowered to regulate the hours of teaching, and the length of the annual vacation; and their regulation on these points the schoolmaster is required to observe under pain of censure, suspension, or deprivation.

According to the 19th section of the Act of 1808, the superintendence of schools is continued in the ministers of the Established Church; and there is no clause of any subsequent Act expressly repealing this section.

THE UNIVERSITIES OF THE MIDDLE AGES.

BY FREDERIC CHARLES SAVIGNY.*

INTRODUCTION.

THE UNIVERSITIES have exercised a great influence on the condition of Europe ever since the twelfth century, and amidst all changes of condition this influence has remained essentially the same.

Wherever a true life has been manifested in them, they have, all alike, presupposed or endeavored to develop a certain intellectual independence among their students. It was their task, therefore, to communicate the best and most valuable knowledge of every age, and herein consists the peculiar charm and dignity always connected with the position of university teacher. Such a charm and dignity does not connect itself with the mere mechanical transfer of knowledge already acquired; but he who with restless spirit assimilates to himself whatever he studies, and under the stimulus of the spirit of the school and its pupils, feels impelled to communicate it in its renewed shape, holds a position like that of an original author, more limited, indeed, but with more vivacity and original force, inspired by direct and personal communication with those whom he addresses. This point in the character of the universities is of so fundamental a nature, that their strength and success must inevitably be destroyed where the liberty and independence of this intercourse between pupil and teacher is weakened or destroyed.

In this main feature the Universities of the Middle Ages resemble those of the present era, but in many other respects they differ widely. Above all, they occupied a more important position among the then accessible means of culture than is assumed by those of our own day, which encounter competition on the one side in the higher schools, and on the other in the enormous multitude of books now every where diffused.

One consequence of this was that the period of study at that time was much more extended than now, so that many students, by their mature age, their social rank, office and dignities, obtained a respectability which was reflected over the whole class, to which nothing analogous can now be found. Moreover the spirit of that period favored the formation of new and almost independent guilds, so that it was natural that the universities should form such associations, and that the cities in which they were established should permit this without jealousy. But the great superiority of the ancient universities over those of our own day lies in the manner of their formation. For it would be a great error to consider the Universities of the Middle Ages as educational institutions, in the sense by us attached to the word, that is, as establishments

* History of Roman Law in the Middle Ages, (*Geschichte des Römischen Rechts im Mittelalter*) vol. III, p. 153 to 419.

founded by a prince or a city for the particular benefit of natives, although foreigners might be allowed to share their advantages. Such was not the case, but whenever a person inspired with a strong desire to teach had once gathered around him a number of studious youth, a succession of teachers easily followed, the number of hearers increased, and thus a permanent school grew up, wholly from internal necessity. Great must have been the reputation and influence of such a school when but few existed in Europe, and oral instruction was the only possible mode of acquiring extended knowledge.

What a deep sense of responsibility must have been manifest in teachers, what earnestness and zeal in students who had perhaps crossed Europe to pass a not inconsiderable portion of life at the school of Paris or Bologna. Public appointments and salaries were not then given to teachers; it was only when the fire of their zeal burned low, that these means of maintenance became necessary, and princes voluntarily founded and provided for whole universities. But the schools so summoned into being could not be compared with those previously developed out of imperative internal need, though even these carried within them the germs of decay. Their peculiar success resulted in part from accidental, personal, and temporary conditions. A few teachers of great reputation could render a school famous, but it might rapidly decay in the unskillful hands of their immediate successors.—For the universities stood wholly without external support, based on themselves, unconnected with a pervading national culture and without the indispensable foundation of preparatory schools. But more lasting than their original prosperity has been the intellectual impulse imparted by them to Europe, and lawyers should never forget that modern scientific jurisprudence is based on the foundation laid by the Bologna school.

Nearly at the same time, three universities enjoyed great reputation: Paris in theology and philosophy, Bologna in Roman law, and Salerno in medicine. But the school at Salerno, however probable the great age assigned to it may be, has no place in this present inquiry, not only because no detailed information in regard to its early condition is extant, but especially because it remained without influence on the development of the other schools; for of the medical schools formed at a later period, it can be proved that they were in preference organized after the models of the schools of theology and jurisprudence, near which they grew up.

The two others, Paris and Bologna, are not only without doubt the two earliest schools attaining a general European renown, but they have served as models for numerous universities of a later date. There is a remarkable contrast in their constitutions, dating from their beginning. In Paris the corporation consisted of all the professors, who possessed all the power and authority, while the students, as only the subjects of the little state, are nowhere particularly mentioned. In Bologna the students formed the corporation, and elected the officers from their own body, and to the authority of these the professors were subjected.

The universities which were afterwards established imitated these two fundamental forms, so that Bologna became the model for a great part of Italy, Spain, and France, ⁽¹⁾ and Paris for England and Germany. To explain this remarkable contrast, two causes should be equally assigned. First, the republican spirit in Bologna, which was easily communicated to the students; and secondly, the different nature of the branches of learning for whose cultivation

the two schools were established, Bologna being originally a school for jurisprudence and Paris for theology. That Paris was a theological school very naturally led to a greater subjection of the students, the more since they had always been under strict discipline in the convents and cathedral foundations.

The law of imitation alone sufficiently explains how forms once established were transferred, even to those schools and to those branches of study in which these two original conditions did not exist. That just these two universities, Paris and Bologna, were taken as models for those of later date, and that many other arbitrarily chosen systems did not rise by their side, is entirely explained by the great age and reputation of these schools. Still it would be very wrong to infer a complete and permanent resemblance; on the contrary these organizations have, in addition, assumed forms peculiar to every nation: thus, for instance, the universities in Germany, especially since the Reformation, have assumed a much more comprehensive character.

UNIVERSITIES OF ITALY.

I. BOLOGNA.

Celebrated as the university of Bologna is, no attempt to describe its history has been made, except in the defective work of Formagliari, (².) Much useful material is scattered through "Ghirardacci's History of the City," and in the "Annals" by Savioli, as well as in Sarti's biographies of celebrated professors. The best information on the constitution of this school is found in the ancient statutes of the university of jurisprudence, now to be described in full. The edition of 1561 consists of three parts: the original statutes, in four books, (p. 1 to 73;) the amendments, (p. 74 to 90,) and a number of new laws, (p. 91 to 110.)

First of all, the date of the statutes must be established. The present collection is very modern, dating from the year 1432, in which old and new statutes are mixed. It must have been made from an older compilation, the period of which can, however, be determined. For the statutes prohibit "godfather-ships" between members of the university and the citizens of Bologna, but they except from this prohibition John Andrea and his descendants; which reference to this eminent person (as living) points to the first part of the 14th century. Some of its older and more recent parts can be distinguished from each other, as the original author chose the first words of his chapters so that they fell in alphabetical order; so that certain deviations indicate a later revision. But even that could be evidence only of the time when the statutes were reduced to writing in the present shape, but not of the time when they first prevailed, for undoubtedly they were handed down from a more remote time, and the most and most important parts of the statute date certainly from the year when the university received its first definite organization. This is probable for the following reasons: First, the distinct reference to existing statutes in a decree of Pope Innocent IV, from the year 1253; also an ordinance of Pope Honorius III, of 1224, making it almost certain that the university had already made its statutes; next, the catalogue of the books in the circulating library, which is added to the statutes, contains works nearly all of the 12th and 13th century, very few from the first part of the 14th century, and none,

for instance, of Bartolus and Baldus. The university of the *artistæ* (i. e. those not students of jurisprudence) had its statutes, which in many points are similar to those of the jurists, but indicate by their language a much later origin.

According to a very old tradition the university of Bologna is said to have been founded by king Theodosius II, in the year 433. In the archives of the city are two completely different charters, which have been frequently copied; but a more awkward forgery can hardly be imagined, both in point of matter and manner. For in the one the name of the country appears as Lombardia; in the other the ambassadors of King Louis of France and King Philip of England are mentioned as present: under both are signatures taken from a *Pacitum* of Charlemagne. In addition to this it is not probable that Theodosius, who was Emperor of the East, should have made such a foundation in Italy: not to mention that a well-known constitution of Justinian directly contradicts the earlier existence of a school of jurisprudence (*Const. Omnem*, § 7.) Against such strong evidences of falsity any further inquiry appears superfluous, and no thoughtful historians have ever entertained a doubt on this subject. Notwithstanding these facts, Bologna has ascribed great value to such evidences of its antiquity as these, and has even based on them its claims in disputes with neighboring cities about its frontier; nor have there been wanting patriotic defenders of their genuineness. But the time and occasion for invention can be pretty clearly determined. Azo claims for Bologna the right to a school of jurisprudence because that city, as well as Constantinople, was founded by an emperor, namely by Theodosius. Similar is the expression of Accursius and Odofredus; though they, in addition, mention St. Ambrose on this occasion, by which the whole affair is referred to Theodosius I. All these authors, then, up to the middle of the 13th century, knew nothing of a charter or the foundation of a university; they only refer to the foundation of the city by the emperor, and deduce therefrom its right to have a university. Even Bartolus knows nothing of these documents, but deduces the establishment of the university partly also from the foundation of the city by Theodosius, and partly because it was customary, or from a pretended foundation by king Lothar, which, however, he does not put forth as veritable. But, soon after the middle of the 13th century, we find the first traces of those documents, which must have been drawn up from those passages of the glossators, with an alteration of their true intent. Ambrose indeed is again connected herewith, (¹) and that the year 433 is still assigned and that so the younger Theodosius is designated as the founder, (though in his reign Ambrose was no longer living,) are to be imputed to the ignorance of the writer.

In fact, the date of the commencement of the university can not now be definitely fixed, because it did not originate in a voluntary foundation. For when, by the reputation of a teacher, and the thirst after knowledge on the part of the students, a school of jurisprudence was formed here, it was a long time before an incorporation and a particular constitution were thought of. A *privilegium* of the emperor gave power of jurisdiction to the teachers, and when the number of students increased more and more, the latter commenced to form a university, the constitution of which, as it appears, developed rapidly and was soon recognized.

The first historical fact we meet is the *privilegium* granted by Frederic I, in November, 1158, at the Diet of Roncaglia. Though Bologna is not named in

the edict, there can be no doubt that it refers especially to this city; for a *privilegium* is granted to those who undertake journeys in the interests of learning, and the professors of jurisprudence are favorably mentioned therein. If, then, it is considered that it was granted, not by the emperor, but by the king of Lombardy, it will be seen that there is no city but Bologna to which it could apply, though undoubtedly it was for the benefit of all future schools of jurisprudence in Lombardy. Moreover, outside of the kingdom of Lombardy there was no city to which it could be applied. The school at Paris attracted many strangers by its reputation; but it was not a school of jurisprudence, and besides, Frederic, neither as emperor nor as king of Lombardy, could grant a *privilegium* to Paris. In Germany there existed no school of any repute at that time, and finally the great favor in which the celebrated professors of Bologna were held by the emperor, leaves no doubt that the *privilegium* was intended expressly for them. (4)

The contents were of a two-fold character: First, it gave especial protection to foreign students, who had to overcome so many difficulties to satisfy their desire for learning; they were to be permitted to travel every where undisturbed; any molestation of them was forbidden on pain of severe punishment, and in particular no one was to be held responsible for the crimes or debts of his countrymen. Secondly, students, when indicted, were to have special judicial privileges. The words are these: "*Hujus rei optione data scholaribus, eos coram domino vel magistro suo, vel ipsius civitatis episcopo, quibus hanc jurisdictionem dedimus, conveniat.*" The meaning of these words can not be misunderstood, and all later doubts have arisen from the mistaken endeavor to find the condition resulting from the changes of subsequent times in this decree. The accused had the choice of being judged by his teacher (*) or by the bishop. Dominus was the peculiar designation given to teachers of the new school of jurisprudence, distinguishing them from the teachers of liberal arts every where to be found; and only to explain this new expression by one more generally known, was added *vel magistro suo*. (6) It is not difficult to see what gave cause to this provision. Justinian had prescribed for the school of jurisprudence at Berytus, that the supervision over the copyists and a certain disciplinary superintendence over the scholars were to be exercised by the president of the province, the bishop, and the professors of jurisprudence. To this was added the decree of Frederic I, which changed a limited supervision into a general jurisdiction, and passed by in silence the presidium of Bologna, for the magistrates of this city are not named; it was directly against them that the privilege was directed, and if in some cases the students did not desire to avail themselves of this privilege, it followed of course that they could obtain their right before an ordinary judge. Nor did the edict mention the rector of the university: either because there was at that time no university and no rector, or because such an essential right of jurisdiction had not yet been conferred upon him.

All subsequent history shows that this decree was carried out, and it is quite incorrect to doubt this, as many do, because the authority of the emperor over the Lombardic cities was afterwards so much diminished; for the subject of this edict formed no part of the great dispute between the emperor and the cities, and the four professors, for whose benefit the privilege had been given, enjoyed no less authority and favor in Bologna than with the emperor.

About the end of the 12th century (the time of Azo) the students committed great acts of violence, and the professors were not powerful enough to exercise the criminal jurisdiction which king Frederic had given them. Such was the condition of things at the time of Accursius; but soon after, about the middle of the 13th century, they resumed their previous criminal jurisdiction. After this time the right of professors and of the bishops is spoken of in the commentaries to the *Auth. Habita*, but seems not to have been longer in exercise. This may be ascribed to the continually increasing number of the professors and the diminished personal authority of some among them, and also to the fact that the power of the university and its rector became more firmly established.

Rectors are first mentioned at the time of John Bassianus, about the end of the 12th century; who, with his scholar Azo, disputed the right of students to elect rectors; the same opinion is found in Accursius, but only as taken from Azo. But Odofredus, who also maintains this opinion, mentions expressly the contrary constitution of Bologna. Very definite historical data agree with this. As early as 1214, the city of Bologna sought to make the rectorate more dependent, or to abolish it altogether; this resulted in great disturbances, which threatened the breaking up of the entire school. The pope took the part of the students, and after a few years all was quiet again, without the rectorship having been abolished. From this it appears clear that the university at that time had the settled right to elect its own rector, with power of jurisdiction; which appears still more from a writing of the pope of the year 1224. Honorius III reproaches the city for not suffering the rectorate and for having banished the rector-elect; even the professors had given their advice in favor of this measure, having forgotten their obligation of submission to the decisions of the rector. This language could not have been used unless the jurisdiction of rectors, even over the professors, had long before been decided by custom and tradition.

From this time the students had four judges: the magistracy of the city, the rector, the bishop, and the professors. The two latter were based on the privilege of the emperor; the two first were, by jurists, derived from the common law; the rector from a passage in the code which enjoins upon those following a trade or vocation, under no pretext to withdraw from the judge set over such profession. Consequently of these four judicial powers only the first was to be looked upon as legal, deriving his authority out of the general constitution; the second was special, founded on the peculiar relation of corporation; the two latter were privileged. The relation of these various judges will appear from what follows.

The Bologna school of jurisprudence was several times threatened with total extinction. In the repeated difficulties with the city the students would march out of the town, bound by a solemn oath not to return; and if a compromise was to be effected, a papal dispensation from that oath must first be obtained. Generally on such occasions, the privileges of the university were reaffirmed and often enlarged. In other cases, a quarrel between the pope and the city, and the ban placed over the latter, obliged the students to leave; and then the city often planned and furthered the removal of the university. King Frederic II, in 1226, during the war against Bologna, dissolved the school of jurisprudence, which seems to have been not at all affected thereby, and he formally recalled that ordinance in the following year.

Originally the only school in Bologna was the school of jurisprudence, and in

connection with it alone a university could be formed. However, it did not assume the form of one university, but several were formed, differing according to the nationality of the students, and as far as direct information can be obtained, there were two, the Cismontane and the Ultramontane. (1) Subsequently eminent teachers of medicine and the liberal arts appeared, and their pupils, too, sought to form a university and to choose their own rector. As late as 1295 this innovation was disputed by the jurists and interdicted by the city, so that they had to connect themselves with the university of jurisprudence. But a few years later we find them already in possession again of a few rectors, and in 1316 their right was formally recognized in a compromise between the university of jurisprudence and the city. The students called themselves *philosophi et medici* or *physici*; also by the common name of *artistæ*.

Finally a school of theology, founded by pope Innocent VI, was added in the second half of the 14th century; it was placed under the bishop, and organized in imitation of the school at Paris, so that it was a *universitas magistrorum*, not *scholarium*. As, however, by this arrangement the students of theology in the theological university had no civil privileges of their own, they were considered individually as belonging to the *artistæ*.

From this time Bologna had four universities, two of jurisprudence, the one of medicine and philosophy, and the theological, the first two having no connection with the others, forming a unit, and therefore frequently designated as one university.

The constitution of these universities was principally based on their statutes. Amendments and additions could be made only every twenty years, for which purpose eight *statuarii* were elected from the scholars, and the approval of the entire university was not required. Meanwhile, strict forms were prescribed for all changes. (2) As early as 1253 the pope approved the then existing statutes; in 1544 a similar confirmation was made, and this new approval of the pope, who was then also the temporary ruler of the state, resulted in making these laws, originally intended for the members of the university only, obligatory upon all. Pope Pius IV also gave a new confirmation, and similar renewals may have occurred frequently afterwards.

In describing the condition of the law-school at the time of complete development, it should be regarded from two points: as corporation and as school. In regard to the first should be considered its members, how they were classified, what officers administered the affairs of the corporation, and what were their outward relations. The members of the university were of various classes, some having full citizenship, others more limited privileges, and still others were looked upon merely as protected. Only the foreign scholars (*advena, forenses*,) (3) possessed full citizenship, among whom civil and canonical members were never distinguished, except in a few rare cases. They were admitted by being matriculated, for which they paid 12 soldi. They were annually required to make an oath of obedience to the rector and the statutes. Their assembly, convened by the rector, was the university proper, in which votes were taken by black and white beans, and every member was bound to appear at least three times in the year, in order to retain his citizenship.

Scholars from Bologna had no vote in the assembly and were not eligible to the offices. This distinction arose from the early *privilegium* of Frederic I, which thus favored foreign scholars, because they stood in need of such pro-

tection. A yet stronger reason was the condition of dependence in which natives necessarily stood to their own city, and in this manner their relation to the university remained long in doubt. For the latter looked upon them as dependents, who ought to take the oath of obedience, belong to both universities, and be under the jurisdiction of both rectors. This the city refused, and threatened those who should take that obligation with fine and banishment. By the papal confirmation of the university statutes, this dispute seems to have been decided in favor of the law-school.

The teachers or professors stood likewise in the relations of individual subordination. They also were required to swear obedience to the rector and to the statutes at their promotion, as well as annually thereafter. They were within the jurisdiction of the rector, and could not only be fined, but could even be excluded, in which case they were no longer allowed to teach, unless they were reinstalled. For a journey they had to request the rector's permission, and if their absence was to extend beyond a week, the consent of the university. In the assembly of the university, they, as a rule, had no vote, except those who had before occupied the position of rector. So too no doctor could fill an office in the university, for instance that of a *consiliarius*, even though he did not wear the costume of a doctor, and lived in other respects as a student. In all other respects they had the same rights and duties as the scholars. All this, though distinctly affirmed in the statutes, might have been considered a claim of the university never actually insisted upon, did not the writers of the 14th century expressly testify to the actual dependence of the professors upon the university and its rectors. It seems that the city also recognized this claim against the professors and *doctores legentes*, for the statutes of the city sought to free from the authority of the university the *doctores non legentes* only, to which the university however did not yield. During solemn processions frequent disputes on rank took place between the *consilarii*, as representatives of the university, and the doctors. A decree of the legate of 1570, and a resolution of the university from the year 1584, give precedence to the *consilarii*, even when the doctors appear as *collegium* and in their robes of office. As merely living under patronage (*suppositi universitati*) belonged to the university, if they had taken the oath of allegiance, the mechanics who worked especially for the school, as the copyists and book-binders; also the servants of students: all owed obedience to the rector and the statutes. Moreover some merchants of the city were annually elected, who had the privilege of pawnbroking for the scholars, and they, as well as the book-loaners, swore allegiance to the rector.

The scholars, as above stated, forming the two universities, were called *Citramontani* and *Ultramontani*. The first consisted of seventeen "nations," the other of eighteen, though their number and names were frequently changed, according as more or less scholars arrived from a country. The distinction was based upon the birthplace of the student himself, not upon the place of residence or birthplace of his father, or his temporary home. Those of the German nation had greater privileges than the others; for instance, they took the oath of loyalty to their own procurators instead of the rectors of the university. Bologna did not constitute a nation of its own nor did it belong to any other, but belonged to both universities in common. Beside these little corporations, there were colleges, i. e. associations of poor scholars, who were maintained by foundations and who lived together under superintendence; but these colleges,

which were so prominent in Paris, never attained much importance in Italian universities, and exercised no influence on their constitution.

Among the officers of the universities the rectors occupied the first place. For a long time two rectors were elected, one for each university; this was the case not only in the oldest period, but is spoken of as late as 1402 and 1423. Afterwards both universities had but one rector, which arrangement appears as early as 1514, and after 1552 was the permanent rule. The qualifications for the rectorate were as follows: he must be a "scholar" (*clericus*), unmarried, not a monk (*nullius religionis appareat*), twenty-five years of age, of sufficient property, and was also required to have studied law, at his own expense, for at least five years. Under "scholar" this law undoubtedly included also the professor, who, as a rule, enjoyed all the privileges of a scholar. A licentiate, and, in 1423, a professor, are mentioned as rectors. "*Clericus*" may perhaps here designate a student or *litteratus*, not a priest; at least the right to bear arms, given in the same statute, does not apply to the priesthood. Besides, the school of Bologna had risen without any clerical coöperation, and the analogy of the Paris university, which from the first had a far more clerical character than that at Bologna, but yet did not require its rector to be a priest, furnishes further evidence of this.

A new election for rector took place annually. The last rector, the members of the council, and a number of additional electors, appointed by the entire university, were the voters, and the rector had to be chosen from certain nations, for which purpose their order of succession had been generally fixed.

Great care was taken to secure to the rector a brilliant rank. He took precedence of not only the archdeacon of Bologna, but, with the exception of the bishop of Bologna, of all bishops and archbishops, even of the cardinals who were students, and this rank was recognized in papal decrees. At first they had no special honorary title; but later additions to the statutes, from the end of the 15th century, confer the title of *magnificus*. A brief from pope Pius IV from the year 1563 gives to each retired rector the right to demand a position in the States of the Church or the Romagna, and threatens the governors of these provinces, who fail to fulfill this law, with a fine of 1,000 ducats.

Under the jurisdiction of the rectors were all the members of the university, and only as far as their relation to this was doubtful, as with the Bolognese, could the jurisdiction of the rectors be disputed. German students alone were exempt. But this civil jurisdiction was indisputable, if both parties were scholars or doctors, or where only the accused was a member of the university, and the plaintiff, of his own free will, made complaint to the rector, for the members of the universities could not refuse to try the case without infringing upon the statutes they had sworn to maintain; but if the foreign plaintiff would not make complaint before the rector, the case was doubtful. The university maintained that the rector even then had jurisdiction, and demanded from the magistracy of the city a solemn oath to keep in force the statutes of the university. But the city would not agree to this, and obliged its officers to execute the judgments of the rector only when both parties belonged to the university, as that jurisdiction, being based on the statutes exclusively, could have no binding power on the citizens, and the judges of the city, who would not respect the jurisdiction of the university, could only be threatened with exclusion from the latter. This dispute was undecided until papal decrees con-

firmed the statutes unconditionally and declared them obligatory upon all. From this time final appeal was made to the papal governor, while previously an application could be made only to the councils of the nations, and from their decision an appeal to a court, consisting of the other rector and four counselors, had been permitted. A brief of pope Pius IV, from the year 1563, seems to extend the jurisdiction of the rector on all matters in which a student was a party, no matter whether as defendant or plaintiff, yet it is possible that here only the previous condition of things was confirmed, and a general expression was for this purpose made use of.

The criminal jurisdiction of rectors was subjected to similar doubts and disputes. In minor offenses, especially those against the university, no scruples were raised, and they involved a fine or expulsion from the university. Fines (³⁰) were formerly equally divided by the two rectors and universities, afterwards by the one rector and *syndicus* of the university. Expulsion (*privatio*) took away the privilege of hearing lectures, of obtaining degrees, and of exercising the profession of teacher. Those under patronage, as for instance librarians and copyists, were punished by being cut off from all business relations and contracts with the members of the university, without the latter being liable to punishment. In order to be able to expel foreigners also, as for instance citizens and magistrates of Bologna, the excluded individual could obtain no right against a scholar, and the exclusion extended even to his descendants, and every city which gave an office to him was also, with all its citizens, placed under the same prohibition. However, it was not difficult to get relief from the judgment, and a fine was then substituted. More disputes arose in criminal cases, as in these the public peace of the city was deeply concerned. For this reason the jurisdiction of the professors, which rested on imperial privilege, could not always be maintained; and much less could the city be expected to respect the jurisdiction of the rectors. In some cases this was remedied by special deliberations, as e. g. in the year 1302, by a large mixed court. The statutes conferred upon the rectors a jurisdiction even in criminal cases without limitation, and threatened the expulsion of all members of the university who withdrew themselves from this jurisdiction. The question was finally legally settled by a papal bull, in the year 1544, providing that the jurisdiction of rectors should exist only when the criminal as well as the injured person belonged to the university, cases of capital crimes being excepted.

Thus the four judges, which the old constitution appointed for the scholars, occupied the following relations towards each other: if both parties were scholars, none could withdraw from the rector's jurisdiction; if only the defendant was a student, and the foreign plaintiff made complaint to the rector, the accused was obliged to submit to it; but if the other complained to the city judge, the accused had a right to acquiesce or demand a court of professors or bishops (which the statutes expressly permitted,) but the cause in this case could not be brought before the rector. This was afterwards changed, however, by the papal approval of the statutes of the university. Beside the rectors, the university possessed the following officers:

a. The *councillors*, i. e. representatives of the nations, generally one to each nation, but for some nations, two, who formed the rector's council or senate, and settled many affairs with him alone. The German nation was represented

by two councilors, who had the title of procurators, and exercised jurisdiction within their nation, to the exclusion of the rector and city courts.

b. The *syndicus*, who represented both universities at foreign courts. He was elected annually from the scholars, and was under the jurisdiction, not of the rector, but of the entire university, and received a salary of 12 liras, and later one-third of all forfeits and fines.

c. The *notary*, elected annually from the notaries of the city for both universities. He received certain fees and a salary of 40 liras.

d. The *massarius*, or treasurer of both universities, elected annually from the bankers of the city.

e. Two *bidelli* (beadles,) one for each university, elected every year.

The outward relations of the university to the city of Bologna show unmistakably that great value was attached to the preservation and prosperity of the school. This is indicated by privileges and liberties given to teachers and students; the former, if citizens of the city, were free from military service, and later from duties and taxes also; foreign teachers and scholars were treated as citizens of Bologna; and the city paid damages for robbery and assault, unless they could capture the evil-doers. Special laws provided for the amusement of the students. Thus a law from the year 1521 imposed on the Jews the annual payment of 104½ liras to the jurists, of 70 liras to the *artistæ*, with which sums a carnival-supper was provided for the students. According to ancient custom, the students, after the first snow had fallen, used to collect money from the doctors and other notables, and this matter was regulated with special care in the latter part of the 16th century by law. These collections were to be taken only by those selected by the university for the purpose, and only after the legate or vice-legate had made declaration that snow had really fallen. The money was not to be used for drinking and entertainments, but was to be deposited in a safe place, and expended to honor eminent professors with a painting or a statue in the university precincts. As frequent disputes resulted, the law determined that only one such monument should be erected annually.

Gambling was interdicted under a fine of 5 liras. Jealous watchfulness was exercised to prevent other large schools from prospering at the expense of Bologna. Every teacher was put under oath; by severe penalties it was sought to prevent any loss. Death and the confiscation of all property was the penalty on citizens who should persuade any scholars to study elsewhere; also on the native and salaried foreign professors (if the first were over fifty years of age, the latter within the term of their engagement,) in case they removed to another university. The general interests of the university in this regard were identical with that of the city, and no objection was made to these measures; yet the statutes defined expressly what should be done, if by a quarrel with the city the suspension of the university became necessary. The hiring of lodgings gave early cause of quarrel and of legal enactments. Four assessors of taxes were elected annually, two from the city, two from the students, who fixed the rent of rooms, and the proprietors were forbidden to ask more than this tax, as well as the professors and students to increase their rent. No scholar was permitted to drive out another, and every one had a right to remain for three years in the rooms he had rented. The proprietor who did not submit to this taxation was punished by interdiction of his house, and no student could rent from him; the same punishment was inflicted when a citizen made a false accusation

against a scholar, and was extended to the owners of neighboring houses, whenever a scholar was injured or robbed. That foreign students might not lose time in looking for lodgings, the notary of the university always kept a complete list of all apartments for rent. Students were not permitted to stand godfather in any family of the city and its surroundings, without the permission of the rector: at first only J. Andrea and his descendants were exempted from this limitation; but later the male descendants of any doctor of Bologna. For the maintenance of its rights, the university received from time to time special papal conservators, which custom, however, appears not to have been permanent. In 1310 the archbishop of Ravenna, and the bishops of Ferrara and of Parma, were appointed; in 1322 and 1326, the bishop of Bologna.

In considering ~~the university as a school~~, two subjects are to be discussed: the personnel, i. e. the doctors and teachers, and their duties, consisting in lectures, repetitions, and disputations. The various opinions as to the origin of the title of doctor, have generally overlooked the fact that in a short time, even in the same institution, its meaning has very much changed. At the foundation of the law-school of Bologna, *doctor*, *magister*, or *dominus*, was, no doubt, the name by which Irnerius and his immediate successors were designated; an office or a dignity acquired it could not mean, because such did not then exist. Irnerius himself, in old documents, is named *index*, or *causidicus*; by contemporary historians also *magister*, but nowhere *doctor*. The more modern Walfredus is called *doctor*, *magister*, and *index*. After the school had existed for some time, and attained a solid foundation by having several eminent teachers at one time, viz., about the middle of the 12th century, the dignity of doctor appears to have been assumed only when bestowed by special act, which circumstance may be attributed to the fact that by the privilege granted by king Frederic I, the professors of the law-school had a sort of juridical authority. The title, as far as may be inferred from later times, was given the doctors when, after an examination, they found the candidate worthy to enter their ranks. This admission, called promotion, gave an unlimited right to teach, in connection with jurisdiction by each teacher over his scholars, and also the right to participate in the giving of degrees, i. e. a place in the faculty of promotion. Yet at that time the right of teaching was not exclusively reserved to the doctors, for in the 12th century teachers appear without that title. At the end of the 12th century, doctors of canonic law (*Decretorum*) were created, but they did not enjoy equal privileges until some time afterwards. During the 13th century, *doctores medicinæ* (or *fixicæ*), *grammaticæ*, *logicæ*, *philosophiæ et aliarum artium*, and even *nolaria*, were created. Professors of law were sometimes also styled *magister* and *magisterium*, but they considered the title of doctor as their own, while other teachers were to be styled *magistri* only.

In later times, for selfish reasons, the participation in the privileges of doctors was more and more limited, and this may have been the principal cause of the rapid and permanent inner decay of the school. The highest professorships were to be filled from native families, and this regulation was adopted as a statute, though the university opposed it without success. It also became a custom to adopt only native Bolognese into the faculty of promotion, so that among the Bolognese this reception and the promotion were inseparably connected. A narrowness similar to that shown here by the native-born towards foreigners, manifested itself, to great harm to the schools, among the members

of the faculty towards their fellow-citizens, since they took an oath not to promote any other Bolognese but their own sons, brothers, and nephews, by which they intended to make the dignity of doctor hereditary in their own families. But the interest of the city identified itself with that of the university of the students in acting against the faculty, and thus, in 1295, the faculty obtained consent to the promotion of six Bolognese only under condition that they were not relatives of members of the faculty. The dispute became much more warm in 1299, when Vianesius Pascipoverus, a Bolognese, not belonging to the family of any of the faculty, sought promotion. The faculty declined on account of the above-mentioned oath; but the city, called upon by the rector, forced them to consent, under menace of a fine of 100 *liras*. The same dispute was renewed when, in 1304, several Bolognese sought promotion, at which time the city again threatened the faculty with a fine of 1,000 *liras*, and every member with a fine of 300 *liras*. The faculty submitted, and after this time no similar case occurred; but a way was found by which the faculty, in the main, obtained its object, by separating the membership of the faculty from the dignity of doctor, and by limiting the faculty to a certain number of members, who were to be specially elected. By these events, relations became more strictly defined, and we must now treat of them in detail; first of the doctors, and, while treating of them, of the narrow circle formed by the faculty of promotion, then of the teachers of the law-school.

The degree of doctor was given in either Roman or canon law, or in both; in the former more often in older times. Of the canonist six years of study were required; of the civilist, eight years; a lecture or repetition delivered by him was counted as one year's study, and if he had attended lectures on canon law during three or four years, one or two years less were required. He was obliged to testify on oath as to this period of study. After this the candidate selected a doctor, who presented him to the archdeacon; he could also elect two persons to present him; three, however, not without the consent of the rector.

The examination of candidates was two-fold: the *examen* (*privata examinatio*) and the *conventus* (*publica examinatio*); each examination conferring a special rank.

Before the examination, two texts (*puncta assignata*) were given to the candidate, both from the Roman, or both from the canon law, or one from the Roman, the other from the canon law, according as he intended to be promoted in one or both faculties. On the invitation of the archdeacon, the examination was held on the same day, when the candidate read his composition on the texts. The presiding doctor, as it appears, examined him alone; the other doctors could offer suggestions and questions on the written treatises, and had to declare, under oath, that no understanding existed between them and the candidate. The doctors were instructed to treat the candidate kindly, as if an own son, under penalty of one year's suspension. Immediately after the examination the doctors took a vote, and if the candidate was declared worthy, he received the title of licentiate.

The *conventus*, or public examination, which conferred the degree of doctor, took place in the cathedral church, whither they went in solemn procession. There the licentiate delivered a lecture on law, over which the students, not the doctors, held a dispute with him. Then followed an address of the archdeacon

(or the doctor, who represented him,) in which the new doctor was formally proclaimed. Finally he was presented with the insignia of office, the book, the ring, and the doctor's hat, and a place on the platform was assigned him, after which the procession left the church. It was permitted to confer the degree in private, and afterwards to repeat the ceremony publicly. Generally examination and *conventus* immediately succeeded each other, and were both parts of the same act. At least, in older documents, where the doctorial degree of the parties and of the witnesses is not easily forgotten, the licentiates are not accustomed to be mentioned, and even in the statutes almost no regard is paid to the condition of licentiate, as will be shown hereafter. It is therefore but accidental, when in a few cases the title of licentiate seems to be at all permanent and more than merely initiatory to the degree of doctor. In the case of Cinus, whose private examination can not have been held later than 1304, because he was presented by L. de Ramponibus, who died in that year; the *conventus* was not held until 1314, as is seen by his diploma as doctor, which still exists, and he must consequently have been a licentiate for ten years. The oldest diploma of Bologna known is the one of Cinus; for that of Bartolus dates from the year 1334.

In the ceremony, several solemn obligations were taken in the general oath of doctor, although the solemn oath of the present day, connected with the duties of that dignity, was not then common. The candidate subscribed to three oaths before the rector: firstly, that he had been a student for the time required; secondly (before the examination,) that he had paid no money but what the law prescribed; thirdly (before the convention,) that he would not act in opposition to the university and the students, and if he should remain in Bologna, would obey the rector and statutes. At the end of the convention the new doctor took oath before the collegium of doctors, that he would not in any way oppose the faculty, or the members thereof. More important than all these obligations was that requiring the new doctor to promise on oath not to teach outside of Bologna—by which it was designed to preserve the school to Bologna exclusively. According to forms still existing, this oath was not made before the promotion, but at the installment into a professorship; nor before the doctors, but before the city magistracy, and consequently it was not demanded of strangers, who had no intention of teaching in Bologna. At first, Pallius and his colleagues, who were already in office, were required to promise under oath that they would not lecture outside of Bologna for two years. Soon afterwards that general obligation was introduced as a permanent form before entering on the duties of teaching. Of this the following cases are known: In 1189, Lotharius Cremonensis; in 1198, Bandinus and Johanninus; in 1213, Guido Boncambii; Jacobus Baldwini; Oddo Landriano; Beneintendi; Pontius Catellanius; in 1216, Guizardinus; in 1220, Lambertinus Azonis Gardini; Bonifacius Bonconsilius; in 1221, Benedictus de Benevento.

In later years the oath was expressly prescribed in the statutes of the city (of 1259,) with this modification, that it should be administered before the end of the solemn ceremony, but obligatory on those only who intended to become teachers in Bologna. The papal decrees, which permitted the doctors of Bologna to teach in any place, had no regard to this oath; but were intended only to cause the degrees conferred in Bologna, which in itself had not this obligation, to be recognized every where. In 1312, at the request of the scholars, who paid the city for it, the oath was entirely and forever abolished.

The very considerable expenses of a degree consisted partly in fees, partly in incidentals. The fees for the examination were fixed at 60 liras, those for the convention at 80 liras. Of these the presiding doctor or doctors received 24 liras; every other doctor in the examination 2 liras, and in the convention 1 lira; the archdeacon, for each of both acts, 12½ liras, and he or his vicar in each solemnity 3 or 3½ liras, for which he had to deliver an address. Severe laws prohibited the remission of these charges, except in specified cases to which degrees had been gratuitously allowed. A church-council in the beginning of the 12th century prohibited teaching for money; but this order had regard to cathedral schools only, not to universities. But the decrees of pope Innocent IV, about the middle of the 13th century, addressed to the university of Bologna and to the bishop of Modena, refer directly to the conferring of degrees, for which no payment should be taken. These decrees may be explained by undue and illegal payments having been exacted, perhaps also secret presents, or bribery: though it is possible that, like many similar laws of the middle ages, they forbid all payments, although, notwithstanding, they were unhesitatingly offered and accepted. This is illustrated by the example of Frank Accursius, who obtained (in 1292) absolution, as well as for other sins, for payments he and his father had accepted for degrees. A more considerable expense than the fees was that attending the display in the procession before and after the degree was conferred, when, according to custom, clothes were given to many persons. Thus Vianesius, in 1299, when the degree was refused to him, had spent already more than 500 liras for scarlet cloth, furs, etc., and in 1311 the pope ordered that a special oath should be taken by every doctor, not to devote more than 500 liras towards the display at the time of his promotion.

In this history of degrees, the function of the archdeacon has been mentioned. Many modern historians, accustomed to the practice in the German universities, have taken for granted that academical degrees were, from the beginning, given by imperial or papal authority; this is without any foundation. In Bologna the emperors never claimed such right, and even the popes did not interfere at first; the degrees were conferred by the doctors, independently of any outside power. But in the year 1219, pope Honorius III directed a decree to Gratia, archdeacon of the cathedral of Bologna, saying that, "unworthy persons having frequently received degrees at Bologna, none shall be conferred in future except with consent of the archdeacon, after an examination." Though this decree was addressed to Gratia personally, every archdeacon of Bologna has since then exercised the same right. The cause of this was not the assumption that it was the right of the pope to confer degrees, but care to prevent a repetition of abuses. That this superintendence was given to the archdeacon may have resulted from his being already the inspector of the cathedral and also from the personal importance of Gratia, who had for many years been professor of canon law in Bologna; and his personal reputation is, also, why no mention is made of any contradiction on the part of the doctors. The example of Paris may have had some influence; as there the cathedral chancellor was also always superintendent of the cathedral school, the university being principally developed from this, the right of inspection of the cathedral chancellor was from the beginning transferred to the university. This explains also how the title of chancellor (*cancellarius*) was by other universities afterwards given to every one who exercised a similar supervision,

though this title was suitable in Paris alone. Even in Bologna the archdeacon was named chancellor, and he exercised this office in all the faculties except that of theology, in which, from the first, the bishop had the superintendence over the degrees. From this time the pope looked upon the archdeacon as the head of the school, and directed his communications to him. But his share in conferring degrees has often been misunderstood, it being said that the archdeacon examined the candidates and gave the degrees, and that before this time no regular degrees had been given. This is against the clear testimony of history. The doctors examined and conferred degrees long before the archdeacon had any part in it, also after the pope had ordered him to participate. The archdeacon neither examined nor gave degrees; he was merely present to see that the doctors observed the regulations, and when satisfied of this, he gave his consent. Only one example exists, of opposition on the part of the doctors to the right of the archdeacon, namely, in 1270, when the doctors permitted acts of violence against the bishop and archdeacon, even in church; but they soon enough saw their error, and voluntarily and wholly submitted to the decree of the bishop. The archdeacon, besides the chancellorship, might hold also a salaried professorship, and, by special dispensation, he could be a member of the faculty conferring degrees.

It can not be precisely determined when this system arose, but it undoubtedly was fully established by the middle of the 13th century. In modern times it has been considerably changed. The prior of the faculty held an examination in his office; then followed the examination before the faculty, and immediately afterwards the degree was given and the insignia presented. The public convention, which before could be exceptionally postponed and afterwards held, was now abolished. Strangers paid 32 scudi for the two-fold dignity (*in utroque jure*), 21 for either alone; the Bolognese paid 157 scudi for the two-fold degree, or 59 for that in canon law; 80 for that in civil law. Licentiates were created doctors with less solemnity by the chancellor for two-thirds of these fees; *baccalarii*, who formerly did not receive degrees, by the faculty alone, without the chancellor. These modifications may have been made after the middle of the 16th century, as at that time an edition of the statutes was printed, in which the old form was found entire.

The privileges of doctors were as follows: First, they could teach without restraint, not only in Bologna, but, according to papal decrees, at other law-schools; if the doctors made use of this privilege, they were called *legentes*, otherwise *non-legentes*; the *legentes* having at the same time the jurisdiction granted by Frederic I. Secondly, they alone had the right to give the degree to others; not as in the oldest times, when every doctor, at least if he was Bolognese, had this power, but the degree of doctor (exclusive of that of licentiate) was a necessary condition to this right. The privilege itself depended on the admission into the collegium or faculty, the constitution of which is now to be described.

There were five collegia or faculties at Bologna, which should be distinguished from the universities, and do not correspond to the latter, either in number or organization. There were two faculties of law, the canon and civil, (without distinction of Ultramontanes and Citramontanes, as generally only Bolognese were found in them,) one of medicine, one of philosophy, and one of theology. The oldest and most renowned of all were the two faculties of law, which alone

are to be described here. They are as old as the distinct association of doctors for conferring promotions in common, and as this association was formed gradually, it is impossible to fix a definite, distinct beginning. It remains even doubtful whether at first all the jurists formed but one collegium, or whether that of civil law existed before that of canon law. It is certain, from the well developed form of the promotions and the disputes between the doctors and the city and scholars, that the faculty of the doctors of jurisprudence existed as early as the 13th century, but was, from these very disputes, compactly organized in the beginning of the 14th century. The faculties based their constitution mainly on statutes of the year 1397, which were not essentially changed afterwards, but contained references to statutes of earlier date. By the constitution of the law faculties, members were required to be natives of Bologna and descendants of a Bolognese family, and to have obtained the degree of doctor. But even where these qualifications existed, each faculty was at liberty to admit or reject a candidate. The faculty of canon law must consist of twelve, that of civil law of sixteen regular members; moreover each college could have three *supernumerarii*, and an indefinite number of *extraordinarii*, who must be selected from the nearest relatives of the *ordinarii*, and who took part in the promotions, while the *supernumerarii* are excluded therefrom. At the head of all stood the prior, who was changed among the canonists semi-annually, among the civilists every two months.

All the faculties had one building in common, near the cathedral, in which they held their assemblies. The two faculties of law especially obtained, in later years, particular privileges, entirely foreign to their original character, as of bestowing the dignity of knighthood, for which a foreigner paid 50, a Bolognese 100 scudi. The law faculties also gave opinions on questions of law to parties; though this must have happened rarely, because it was very expensive and accompanied with much ceremony; the opinion could not cost less than 100 ducats, exclusive of office fees, which also amounted to 30 scudi at least. Entirely different from these faculties was the *Collegium Doctorum Advocatorum et Judicum*; undoubtedly connected with the ancient colleges of the *Scabini* and *Judices*, and consequently much older than that of the doctors. Neither does it appear that it was ever united with them. Their true relation seems to have been the following: The oldest teachers of the law-school came, no doubt, from the *Collegium Judicum*, since they most frequently bear this name or one of equal meaning (*Causidici*.) When they began to form a special class under the appellation of doctor, they were so highly honored that they without doubt entered the *Collegium Judicum*, whenever they so desired. And when afterwards the dignity of doctor lost, with its rarity, also its high respectability, it may have become customary for several members of the *Collegium Judicum*, and after a while for all of them, to adopt the degree of doctor, so that they otherwise bore the title of *Doctores Advocati et Judices*, though in this title the first of the three names had no relation to their faculty.

The position of teacher in the law-school could also be filled by scholars. All doctors had an unlimited right to teach, but it is not probable that the same right belonged to licentiates, as wherever the classes of teachers are given, only doctors and bachelors are mentioned, the latter including mainly the scholars. From this, one might infer that licentiates had no special privilege of teaching, but were included among the scholars, which would confirm the opinion that

licentiates, in the olden time, held no permanent position, as such, but only a temporary one, leading to the degree of doctor. Scholars were allowed to lecture by permission of the rector, and the faculty of the doctors had no influence in regard to it. The rector generally had to give this permission, if the scholar who desired to lecture on one subject or treatise had studied five years, or he who wished to lecture on an entire work had studied six years, to which the scholar testified under oath; yet the rector could dispense with these conditions. For this permission the scholar paid to the university 5, 10, or 20 soldi, according as he purposed to lecture on a single subject or treatise, or on a small work (as the *Institutes* or *Novellæ*) or on a larger work. If such a scholar had lectured upon a whole book of canon or civil law, (not merely one article or chapter,) or had held a formal *repetitio* on one or the other passage of either law, he was named bachelor, and enjoyed certain privileges, which are to be described hereafter. (") From this it follows that bachelors were not nominated by the faculty, and that the baccalaureate was not an academic degree, nor a public introduction to the profession of teaching. Lectures by scholars were customary as early as the time of Accursius.

A public introduction to the office of teacher occurs at an early date in Bologna, which subject again is connected with the salaries, the origin of which should be traced. As early as 1279 the scholars made a contract with Guido de Suzaria, according to which he should read the *Digestum Novum* for one year and receive 300 *liras*.* This was rather a fee than a salary, yet it appears to have been the origin of salaries. In the year following, a similar contract was concluded with Garsias, who undertook to read the *Decretum* for 150 *liras*; but he was paid by the city, upon request of the scholars, and thereby it had more the nature of a salary, though only a temporary measure. In the year 1289, permanent arrangements of this kind were made. Two professorships with fixed salaries were created, to be filled annually: an *Ordinaria* on the *Decretum*, with a salary of 150 *liras*, and an *Extraordinaria* on the *Infortiatum* and *Novum*, with 100 *liras*: the first was obtained by Altigradus de Lendinaria, the other by Dinus. These salaries were intended to bind the teachers more firmly to the city of Bologna, and to the university; since the most eminent, by their outside engagements in the city, were often withdrawn from their official duties. This explains, also, why strangers, and Bolognese only occasionally, filled these positions, because the city would not permit such strict obligations to lecture to be laid on its citizens. Nor were the salaried teachers the most eminent, but were rather behind the others in rank and reputation. It was a matter of indifference to the city who filled these offices, and the selection was left to the scholars. The contract entered into lasted one year, and it could only be by mere accident that the same teacher was elected for successive years. Most of those who were thus elected held the diploma of doctors, though this qualification was not always demanded.

In the year 1295 an *Extraordinaria Decreti*, and in 1315 an *Extraordinaria* on the *Volumen*, was added, the first with a salary of 50 *liras*, and the latter with 100 *liras*. The salaried positions, amounting in all to 400 *liras*, were for a long time limited to these four. About the middle of the 14th century very essential changes were made; as early as 1360 the salaries had been increased;

* A *lira* was then worth a little more than a dollar in gold.

in 1364, five legists and one canonist were appointed, whose total salaries amounted to 706 *liras*, 5 *solidi*. In the year 1381 the number of salaried jurists had increased to 23, among whom John de Lignano received 620 *liras*, another 470, several 350, and so decreasing to 100 *liras*. The united salaries of all jurists amounted to 5,125 *liras*, in addition to which 21 *artistas* received 2,860 *liras*. In 1384 we find among the salaried teachers 19 jurists and 23 *artistas*, not the same persons as those who were drawing salaries three years before. Thus a great portion of the teachers received salaries, and finally it became a general rule. This changed the relation of teachers throughout, and they were now considered public officers. The arrangements originally made for one year may have, little by little, become permanent. The election of teachers by the scholars must have become less frequent and at last probably disappeared altogether. In 1420, among 21 teachers of law, it is remarked of only one, that he was elected by the university. As an offset for this loss of privilege on the part of the scholars might be regarded another, which they retained up to modern times, namely:

Besides the salaries paid to doctors, scholars also were paid. Six distinct professorships were established, which were filled annually by election: 1. *Ordinaria in Decretis*; 2. *Extraordinaria in Decretis*; 3. *Sexti et Clementinarum*; 4. *Infortiati et Novi pro diebus continuis*; 5. *Voluminis*; 6. *Infortiati et Novi pro diebus festiviis*. No doctors, licentiates, or Bolognese, could be candidates for those positions. From the applicants the professors were chosen by a board of 76 electors, and great care was taken to maintain the balance between Ultramontanes and Citramontanes. The salary of each was 100 *liras*. As, however, this election sometimes created disturbances, the order was modified thus: All could apply who had studied four years in their own faculty, and five in both faculties together, and held a repetition or disputation. Among these candidates the lot decided. At a later period the university presented twelve candidates, from whom the teachers were chosen by lot. Finally, the distribution of branches was changed, so that these four legists and two decretists were established. The beginning of this singular arrangement is uncertain. As early as the year 1338, something similar appears. The city was then under ban; the university was removed to a small town near by, and one doctor and six scholars were selected to give the lectures; but it is not stated whether this was permanent or whether salaries were paid. In all probability the said six positions were given to the scholars in place of their ancient right of electing the salaried doctors, under which supposition the practice must have been instituted about the middle of the 14th century. Two facts favor this view: first, that of the six professorships, the two principal ones in each faculty (the two of the *Decretum*, together with the *Infort. et Novum* and *Volumen*) correspond exactly with the four former professorships for doctors. Second, the remarkable title of the eldest statute on this subject: "*De doctoribus ad lecturas universitatis eligendis et scholaribus*," while according to this statute all doctors and licentiates were entirely excluded. This date of the origin of the change becomes very probable by a decree of 1417, which confirms the whole arrangement as something old and long existing. These salaries continued into the 18th century. Whoever enjoyed them must become doctor at the end of the year, but paid no fees for the degree. If he did not obtain the promotion, the members of the faculty divided the salary among themselves, and for this pur-

pose all salaries of scholars were controlled by the faculty. Besides these six salaries, every rector had a right to a salaried position as teacher, which also yielded 100 liras.

This history of the salaries in Bologna shows that they had no great influence on the existence and prosperity of the law-school, as they were attached for a long time to a few positions only, and were always, as far as this information goes, very small, while eminent men of learning could not fail to find other opportunities for accumulating great wealth. It would be an error to consider these salaries as, from the difference in the value of moneys, only apparently small. This view is not only without justification any where else, but is contradicted in Bologna by comparing them with other prices of the time, which are not at all out of proportion with the present. At an early time the salaries of the law-school were paid out of certain duties, which afterwards were left to the administration of the university.

It remains to treat of the duties of professors of the law-school, which consisted in lectures, repetitions, and disputations.

As to lectures, their exterior and formal character will be first discussed, while their special scientific contents will be inquired into hereafter. The statutes contain the following regulations: The regular course continued one year. The lectures on the *Decretum* commenced October 19th, and all other lectures on the following day. Before the course was opened, high-mass was held; also an address given either by a scholar or by one of the classical professors. Holidays were expressly mentioned, when no lectures should be delivered. Of these there were about ninety, including the two weeks' vacation at Easter and eleven days at Christmas. No lectures were held on Thursday of any week in which there were no holidays.⁽¹⁵⁾ Any doctor who missed his lecture on other days was fined two liras. The long vacation commenced on the 7th of September, (*in vigilia b. Mariae de mense Septembris*—the day before the birth of Mary.) No regular lectures could be held during these days, but it was permitted to read a single tract or law. Lectures were given both before and after noon. The morning lectures began when at daybreak the bell of the cathedral sounded for prayer, or even earlier if wished, and closed at 9 o'clock. The teacher who commenced too late was fined 20 soldi, and every scholar who remained in the hall after the close of the lesson, 10 soldi. Afternoon lectures commenced according to their subject or the season of the year, and were to last from 1½ to 2 hours. Lectures were given orally, as it was forbidden to bring manuscripts or have them read (by others.) But an oral discourse did not mean an extempore one in contrast to a dictation, in which a uniform custom has hardly ever existed any where.

The lecture-halls (*scholæ*) were in the houses of the doctors during the entire 13th century, and from contracts made at the time, it appears that the use of halls was rented out to other teachers. With a great number of hearers the use of a public building undoubtedly became necessary, as is mentioned by Albericus. In the 14th century, public halls were erected, and their use was afterwards always presupposed in the statutes. The doctors had an unlimited right to these halls; the bachelors could lecture in them twice every week, only during afternoon hours, if no salaried doctor claimed it for himself at that same time.⁽¹⁶⁾

The doctors in the more important positions had their own attendants, (*bidel-*

lem,) who, partly from the promotions, partly from the hearers, received special fees. The memory of a beadle of Azo, by the name of Gallopressus, was preserved on account of his strange name and his deformity; he acquired property to the amount of 2,000 liras.

In regard to lecture-fees, (*collectæ*), no satisfactory information can be found. There were no general regulations, but a special contract was always made, and the teacher generally charged one of the scholars to make it for him. Sometimes a total sum was fixed, for which all the hearers in common were responsible. Thus Odofredus received for one lecture 400 liras, from which one of the hearers retained for himself and his brother 36 liras; also in 1279, Guido de Suzaria received an honorary of 300 liras for reading the *Digestum Novum*. In other cases the fee was fixed for each hearer. Thus in the year 1294 Cabrinus Seregnanus read on the *Institutiones*; and Petrus Boaterius leased him a hall, on the condition that every scholar living in the house of Boaterius should not pay more than 8 soldi, as fee. We find a similar stipulation in the year 1295, for a *collegium* of logic, in which it is stated that the fee will probably be 30 soldi, but may be more than 40. In 1248 a student of Grammas made a contract, in which he promised for board, lodging, and instruction, 23 liras per year. In a manuscript of the Pandects at Stuttgart, a student, Nardus de Clusio, who, judging from the date of his teachers, Rainerius and Jacopus de Belvisio, must have studied at Bologna between 1324 and 1335, noted the following expenses: 1 florin for the salary of my doctor, 10 soldi for being received into citizenship and into the *collegium*, 50 soldi for a repetition. These single cases, however, give little light on the subject. But it may be presumed that the fees were considerable, from the great wealth collected by many of the teachers. As salaries seem to have resulted from these fees, it is possible that in earlier times at least, no extra fees were received for lectures delivered in an engagement at fixed salary.

These revenues of the doctors from their hearers were not always acquired with entire honesty. Thus, for instance, it was customary to loan the scholars money and then take higher fees, while new teachers employed these means only to obtain hearers and reputation, in reality feesing their audience. Therefore, in 1233, Boniface Bonconsilius bequeathed 100 liras to the poor, for the many wrongs he had committed on his hearers, by which he meant especially this sort of usury. Some contracts between the doctors are remarkable. Thus Ægidius, in 1279, not being able to read the *Decretum* on account of sickness, let his hall to Garsias for one-half of the fees; this was not only for the use of the hall, but for the hearers also, who, on his recommendation, went to Garsias. Still more remarkable is an agreement between two philosophers of the year 1295; one was to read logic for three years and give one-fourth of the fees to the other; the latter, to read philosophy for the same period in the hall of the logician, and to give him one-third of the fees, if they amounted to 30 soldi or less per scholar, and also one-third of any surplus beyond 40 soldi. It was not uncommon to recruit hearers, by persuasion or pecuniary advantages offered, though this was prohibited under a fine of 10 liras, with the exception of reading scholars, who in the beginning of their lectures were at liberty to request the attendance of hearers. All fees were ordinarily for doctors only; reading scholars could accept fees only by permission of the whole university.

In addition to this collection for fees, two other collections were raised, for

the attendants or beadles, and for the use of the hall. The collection for beadles was two-fold: the first, levied by the beadle of the university in all the lecture-halls, 4 soldi from each scholar; the second, collected by the beadle of each teacher from the hearers, which amounted to 2 liras from the students in the foremost seats, (nobility,) and 4 soldi from the others. The last collection, for the use of the hall, was levied when the hall was in a private house; for this purpose the reading scholars were allowed to take 5 soldi from each hearer. The relation of teacher and scholar was not partial and temporary, as in modern times; every scholar adhered exclusively or almost exclusively to one professor, whom, in a more definite sense than is the case with us, he could call his own teacher. This more intimate personal relation is presupposed in the *privilegium* granted by Frederic I, which places each scholar under the jurisdiction of his teacher; also in the before-mentioned contract, by which one teacher transfers his scholars to another.

At an early time a distinction was made between ordinary and extraordinary lectures, but the meaning of these expressions is much disputed. According to some the former were held in public, the latter in private houses; according to others the former only were paid lectures; but both views are wrong, the first because this distinction appears as early as the 13th century, at a time when no public halls existed, while in the statutes, which generally take for granted the use of public halls, that distinction is observed. The second is erroneous, because paid lectures are mentioned, and on the other hand, scholars who gave extraordinary lectures could not take fees. The first view has no support, and the second but very little, in a passage of Odofredus, in which the latter says that he would give the ordinary lectures next year, as he did always, but no extraordinary lectures, because the scholars paid so little. He could not have spoken thus, if the ordinary lectures were gratis; but it is possible that the fees for these were more secured and defined, or that Odofredus, on account of insufficient remuneration, had no desire to give extraordinary lectures, while he could not withdraw from the ordinary lectures, without dissolving his connection with the school, and withdrawing from the faculty.

In connection with the lectures, two other distinctions are made: that of ordinary and extraordinary books, and of ordinary and extraordinary teachers. Some connection undoubtedly existed between these related terms, the only question being what was the nature of that connection. The basis of all seems to be the distinction of ordinary and extraordinary books. Ordinary books, in Roman law, were the *Digestum vetus* and the *Codex*; in canon law, the *Decretum* and the *Decretales*—all other books were extraordinary. All lectures on extraordinary books were extraordinary; those on ordinary books might be ordinary or extraordinary, which depended only on their being read in the morning or in the afternoon, so in this point of view the morning hours might be considered ordinary, the afternoon hours extraordinary.

Hence an ordinary lecture was one read on an ordinary book in an hour of the morning, and these were specially reserved as a privilege of doctors from native families. From this the names of ordinary and extraordinary teachers are explained. Ordinary teachers were those entitled to give ordinary lectures, though they may have given, alone or in connection with the ordinary, extraordinary lectures. Extraordinary teachers were those who could give none other than extraordinary lectures. Originally this distinction was identical

with that between doctors and bachelors; but since the ordinary lectures were limited to Bolognese, three classes were distinguished: ordinary reading doctors, extraordinary reading doctors, and bachelors. The latter could give only the extraordinary lectures, except the paid ordinary lecture on the *Decretum*, which anomaly is explained from the position having been first filled by a doctor and afterwards by a scholar. At the foundation of the distinction between ordinary and extraordinary lectures, there was an opinion that ordinary books were more important and necessary than others, and hence the first and best hours of labor should be devoted to them. To this, undoubtedly, was attached the advantage, that as chief lectures they were more numerously attended, as all scholars without exception heard the ordinary lectures, while many selected arbitrarily from those called extraordinary, which were even declared by Odofredus not to be necessary. At the same time the ordinary lectures were more remunerative than others, and from these real advantages we understand that selfishness of the Bolognese, so fatal to the school, who put themselves in sole possession of these positions. The reason that these books were distinguished from others as ordinary, is found in the nature of the canon law, since the *Decretum* and *Decretales* were its most essential parts. However, in the Roman law the reasons are only accidental, as will be shown hereafter. All these contrasting and technical expressions had different meanings in different places, as the organization of the Padua school will show. Still there are traces of their original meaning at a date hardly to be expected, as, for instance, in a plan of studies of the 16th century, for Pisa, the ordinary books are subjects of lectures of ordinary professors only, who interpreted them during the hours of the morning.

Besides lectures, regular disputations and repetitions were held. A repetition consisted in the complete interpretation of a text, enumerating and criticising all doubts and objections. The text had to be taken from the subject of the lecture, the course then being delivered by the reader, and must have previously been read and explained in that course. Disputations could only be held by doctors and by such scholars as applied for a salaried position. All bachelors were required to be present, and all scholars could dispute. The subject of the disputation was a single question on law, (*questio*), similar to theses appended to inaugural dissertations of our day; only these questions had a more practical character, and were either original or taken from the practice of the courts. These disputations are older than the school of Bologna, since they served in the ancient grammar schools as means of training for future practice of law. Repetitions and discussions were partly required, partly voluntary. All salaried doctors, in their succession, from the youngest to the oldest, were obliged to conduct them. Repetitions were held from the beginning of the scholastic year until Shrovetide; disputations from that time until Easter. Every week one such exercise was required, upon the day when no lectures were given, and only high holidays were excepted. The rector exercised a superintendence over the strict execution of these rules, and if there were not sufficient salaried doctors in number to fill up all the allotted time, the rector could select any doctor to hold the repetition or disputation. The text of the repetition, as well as the question of the disputation, was publicly announced several days before, and within a month the entire arrangement had to be written down and handed to the beadle of the university.

II. PADUA.

The university of Padua had for a long time salaried historians. Of these was Facciolati, and (since 1786) Colle, b. 1744, d. 1815. He had been a novice of the Jesuits; then became historiographer of the university, and, under the foreign domination, state-counselor in Milan. After his death, Giuseppe Vedova obtained the manuscripts of his work and published it. It is the best and most complete existing history of this university, only very prolix, especially the three last volumes, which contain principally biographies of professors.

The law-school of Padua originated about the year 1222, through the emigration of teachers and scholars from Bologna, in consequence of one of the disputes before described. Such emigrations took place frequently, and it was mere chance that from this a flourishing school arose. It is however quite erroneous that, as some assert, the quarrel between Frederic II and the city of Bologna led to the removal by the emperor of the law-school to Padua. No contemporaneous document confirms it, and there was no reason for preferring Padua. It would have been much more natural to have attempted a removal of the school to Naples, where Frederic II made great efforts, in later years, to establish a brilliant school. The oldest definite information in regard to the constitution of the scholars, which has remained unknown to the proper historians of the university, is in a document of the year 1228. At that time the scholars had four rectors, under each of whom they were placed, according to their nations. In that year it was proposed to remove the school from Padua to Vercelli, but it is not known with what result. The statutes of the city from the year 1259 recognize the right of the scholars to elect rectors and to enact statutes. In 1260 the university, under Gosaldus, a Spaniard, as rector, created the earliest known statutes. In the following year there were two rectors, a Cisalpine and a Transalpine.

Scholars and teachers of the liberal arts are spoken of as early as 1262, but for a long time the *artistæ* formed no university of their own, but belonged to the law university. In 1360 they obtained, by the judgment of an umpire, their own rector, dependent, however, upon the jurists. Their rector took oath upon the statutes of the jurists; appeal from him could be taken to the rectors of the law university, which also drew some revenues from the *artistæ*. From this time there were in Padua three rectors, two of the law university, (for the Cisalpines and the Transalpines,) and one for the *artistæ*. A new umpire's decree, in the year 1399, freed the *artistæ* from this subordination, except the right of appeal; for this the ruler of Padua, Francis de Cararia, presented to the jurists a house, 500 ducats in value, which since then has remained the university building. In the university of the *artistæ*, the students of medicine were most numerous, at least it appears from their statutes that their rector was required to be a physician. A school of theology was added by the pope in 1363, the doctors of which formed a college of their own, but its scholars belonged to the university of the *artistæ*. Afterwards the jurists had frequently but one rector, if there were no suitable candidates for both offices: in 1473 this was made the law, so that even the statutes no longer speak of two universities of the jurists, but only of one. Still later, on account of the expenses, the office of rector was abolished altogether; first a vice-rector took the place, then a syndicus, who was also named pro-rector, and sometimes a pro-syndicus,

who was the representative of the German nation. Finally, in 1738, the office and its authority were taken from the scholars, and vested in the professors, so that the curatores annually elected a professor as syndicus and pro-rector of the jurists, and one also for the *artistæ*.

As regards the statutes more particularly, a printed preface describes many modifications, and gives their dates; moreover, in the first edition are found distinct traces of revision in the year 1466. Changes seem to have been more radical than in Bologna, so that the original form can be scarcely recognized. New editions deviate very much from the first. In the second edition the order was changed, portions were omitted, among others the very numerous original documents contained in the first, but this edition has remained for the most part unchanged, later amendments being merely added. Notwithstanding these many modifications, it is evident that the statutes of Bologna were the basis; for they often agree word for word, though more frequently in the first than in subsequent editions; the verbal arrangement indeed is often quite the same, while by minute changes in the expression quite another sense is given.

From this history of the law-school of Padua it is evident that in general the constitution of Bologna was adopted, and that all essential changes belong to a later period. This relation of the two schools should not be lost sight of in the description which follows.

Here also we must consider the corporation and the school. Members of the corporation were all the scholars, all the teachers, and all the officers of the university and those under its protection. Scholars must be matriculated, for which generally one and a half liras, and by the nobility, six liras were paid. Those students who were natives of Venice, or of the city of Padua and its dependencies, though they were subject to the university, could take no part in its acts or administration. Likewise the lecturing doctors or teachers had no active membership, but owed obedience to the rector and the university. They were under the jurisdiction of the rector, could by him be excluded, and could be reinstated only by the entire university, on payment of five liras; and they were obliged to swear an oath of allegiance every year. The two universities were the same as in Bologna, Cisalpine and Transalpine; but after 1473 they were regarded as one. Both together numbered 22 nations, among which the Germans had two votes, the first rank, and great privileges. *Collegia*, as in Bologna, were not of great importance.

Among the officers of the university was, first, the rector, afterwards syndicus and pro-rector, as mentioned before. The qualification for the rectorate resembled that of Bologna, only that the age of 22, instead of 25 years, was required. In later years the procurator was taken from the nobility, and his social position, as in Bologna, was very high.

The jurisdiction of the rector or pro-rector extended over the scholars, exclusive of the teachers and those under the patronage of the university. He could try civil cases only when both parties belonged to the university; if one was a native of Padua, only when the other party was a foreign scholar. An appeal from the judgment of the rector, if the case involved more than a ducat, was made to the *consiliarii*; afterwards, when the amount was over 10 liras, to the *podesta*. In criminal cases the jurisdiction took cognizance only of infractions of the laws of the university, and of small offenses against scholars. Punishment consisted in fines and exclusion (*privatio*). Crimes proper belonged to

the jurisdiction of the city. The Germans were not subject to the rector, but to their own *consiliarius*, whose jurisdiction extended also to cases in which the opponent did not belong to the university. The rector of the *artistæ* had similar jurisdiction, but, according to the statutes, it was more extended, including criminal punishments short of death or maiming.

Besides the rector the following officers are named: the *consilarii* of the nations; the *syndicus*, who became also pro-rector after 1639, and whose representative, in case of his absence, was the *consiliarius* of the Germans; a notary, who received 17 ducats annually; a beadle of the university, who was at the same time its steward (*massarius*), and six beadles for the service of the professors in the lecturing halls. The beadle of the university levied annually two collections, each of one ducat, from every scholar on the first seats, of 8 soldi from all others. Every other beadle levied three annual collections, of one ducat and 8 soldi respectively, in the hall which he superintended.

The scholars were guaranteed equal rights with the citizens of Padua. In regard to renting of rooms, the laws were similar to those of Bologna. All subjects of Venice must have studied in Padua, if they applied for any state office. The scholars held annual public games, for which the teachers had to contribute 100 ducats. The superintendence over the school was exercised by three Venetian senators, as curators of the university.

At to the school itself, we will first consider the promotions. Every student of civil law was required to have studied Roman law for six years, but three or four years given to canon law counted as two or three in Roman law; likewise every student of canon law must have studied for six years, five years' study of Roman law being equivalent to two years of canon law. He was further required to hold a repetition or discussion, or thirty lectures, before he could present himself for the degree of doctor. The examinations, as described in the statutes, were almost exactly like those in Bologna, and consisted of two parts, the examination proper and the solemnities (*conventus*) in church. By the examination they became licentiate, by the convention, doctor. The examination at Bologna was recognized in Padua, and the committee conferring degrees consisted, in 1614, of four members; in 1630, of six. The oldest diplomas known are dated 1379 and 1397. The right, which in Bologna was possessed by the archdeacon, was given to the bishop of Padua by voluntary act of the doctors, and he is styled in documents *cancellarius*, though this name, did not exactly belong to his office; in 1263, pope Urban IV confirmed what he called this "long possessed" right of the bishop. The fees for degrees were formerly very high, but became considerably reduced in the year 1460. In the statutes of 1550 they amount, for a simple degree, to over 200 liras, of which 130 came to the doctors, and 25 to the bishop. The doctors in both branches of law paid double. In the later editions, those after the second, the taxes for the degree are fixed at 150 liras in the Roman law and at 180 liras in both laws; of these, each of the six giving the degree received in both cases 2 ducats, and the bishop, in the first case, 18 liras, 12 soldi; in the second case, 27 liras, 18 soldi. The colleges of doctors, i. e. the faculties of promotion, were similar to the Bolognese: but from the oldest date they had in Padua only four faculties, the jurists forming but one. The faculty of law was less limited than that of Bologna, since the number of its members was gradually increased from 12 to 30; and after 1382 their number was not limited. The faculties were

called *collegia pontificia*, no doubt, because their right of promotion was erroneously ascribed to a papal edict in which the office of chancellor was recognized in the bishop. The faculty of law was the *Collegium Judicum*. At the beginning of the 17th century, two new faculties of degrees were added, one for *artistæ* in 1616, one for the jurists in 1635. Both gave degrees, not by pontifical authority, but in the name of the republic (*Collegia Veneta*.) They consisted of professors only, while the old faculties were composed of professors and doctors. The true origin of this change was this: In the year 1565, pope Paul IV ordained that every one who desired promotion in any faculty should first profess the Catholic faith. This decree caused great excitement in Padua, especially among the German students. The bishop held strictly to the decree, and the government, though it favored the foreign students, dared not openly disobey the court of Rome. In some cases they had promotions conferred through the *podesta*, in others through the *palatin*, in order to escape being connected with the bishop. Finally they resolved upon the decisive measure above referred to, by which all difficulties were forever settled, and all promotions by *palatines* were forbidden.

The custom of engaging and remunerating teachers appears to have existed in Padua at an earlier date and more generally than in Bologna, which had developed more by itself, and therefore did not need outside help. In 1267 they made their own statutes on the election of professors, since here, as at Bologna, it was taken for granted that the right of election belonged to the university, as having certainly the deepest interest in the ability of its teachers. No very early information as to the salaries of professors is given; but their number must have been large, since for every new need they established a new nominal professorship, letting the older ones remain. About the end of the 16th century, some nominal chairs were abolished, and from that time to the present the condition of the law professors seems to have remained without any essential alterations. The principal positions were filled by two, a first and second professor, (*concurrentes*), to which a third was in some cases afterwards added; these positions were conferred by the city of Padua, on natives of the city only. Upon this was based the organization of the body of law professors, which, as before stated, took place in the 16th century, and which formed essentially the foundation of the earlier constitution. These numbered, in all, 20 professors, exclusive of 4 third class or Paduan positions. The principal among these were a morning and evening professorship of Roman law, each filled by three teachers; the same of canon law; the remaining 8 professorships being those of criminal and feudal law, the *Institutes*, etc.

From the oldest time all positions were filled by annual, sometimes biennial, elections by the scholars. In the year 1443 the right to vote was taken from them, but afterwards recovered to a limited extent, and lost again, and finally in 1560, after which the government of Venice filled the chairs, with the exception of that of the third professorship, which remained to the city of Padua. This change was not as important as would appear; for the former privilege of the scholars was naturally limited to the control of the very moderate salaries which, according to the old constitution, were attached to the nominal positions. With these no eminent teacher would be satisfied, and every important engagement made necessary special negotiations and large appropriations from the public funds, by which the control of the more essential positions could not fail to come into the hands of the government.

The qualification for a professorship was determined in this manner: The highest positions required the actual possession of the degree of doctor in both branches of law; for positions of the second class it was sufficient if the candidate possessed one of the degrees or was near promotion; the lower positions could be filled by scholars. All Venetians, nobility and citizens, were excluded from all professorships, while the Paduans had the exclusive right to the unimportant third class positions, and in respect to more important positions, they were limited only so far that only one of the *concurrentes* could be a person born in the city.

Very early, substitutes were nominated, in case a professor was prevented from lecturing, and this became a regular custom, which, however, in later years quite disappeared. Remunerations were of various kinds. The right of scholars to elect referred only to a number of positions commanding very small salaries, which were fixed in the constitution and connected with certain positions. The lowest amounted to 10 florins, the highest to 51, afterwards to 61. Often the teachers elected were satisfied with the honor of their position, and claimed no salary. However, very large salaries existed even at an early day, which were separately determined by contract, and in this point Padua had the advantage over Bologna. As early as 1273, Cervottus, son of Accursius, was engaged at a salary of 500 *liras*. In 1310, Jacopinus de Ruffinis accepted a position with 400 *liras*. In 1314, Raynerius Arisendus received 600 *ducats*. During the 15th century, many salaries rose as high as 800 to 1,000 *ducats*. Decius, who received 600 florins, removed to a position with 2,000 florins in Pavia. Throughout the 16th century, salaries frequently amounted to 1,000 florins. For the year 1598 the salaries are classified: from the lowest of 20 florins, the legal remuneration of the three Paduan professors, to the highest of 1,680 florins, that of Pancirolus. Moreover, the rector held a position as teacher with 50, afterwards 100 *ducats*, which was really paid for the expenses of the rectorate, a paid professorship only in name.

Certain taxes were early designated for the maintenance of the university, but soon had to be increased by large contributions from the state treasury. In 1696 the expenditure of the school amounted to from 70,000 to 80,000 *liras*; in 1651 to about 20,000 florins.

No definite information on the form of lectures in the early centuries can be obtained. During the 16th century, dictating had become so general, that scholars frequently engaged others to write for them, and did not go to the lectures themselves. Afterwards this was entirely avoided, and the professors took no manuscripts to the lecture-hall, but delivered their discourses from memory.

The course of lectures was formerly like that at Bologna. Lectures commenced on the 19th of October; but the statutes show that the close of the course was much earlier; the oldest statutes do not mention the date, but later statutes fix it on July 22d. Holidays were precisely defined. At a later period, lectures were read only from November to the beginning of May, and this university-year was divided into two quarterly courses. The hours were at first arranged like those in Bologna; two hours for a lecture in the morning, one hour and a half in the afternoon. Afterwards lectures were limited to one and even to three quarters of an hour, while the jurists took five lectures, the others six per day. The selection of seats was very minutely regulated, espe-

cially as to who, as *prolatus*, should have the privilege of the first two benches. All professors were forbidden (about 1280) to accept fees; but the statutes are silent on this subject.

Padua had ordinary and extraordinary lectures and professorships, but these distinctions, though borrowed from Bologna, were more arbitrarily applied, and showed the order of precedence, the old signification being forgotten.

Repetitions and disputations were similar to those of Bologna, only we find here the following peculiar and very interesting regulation for the disputations. The statutes required the *concurrentes* to dispute together one hour daily, from the opening of the course to Easter, and to hear also the questions of scholars. This custom, originating among the *artistæ*, was adopted by the jurists and by them regulated by law in 1474. In the course of time this custom was limited to the period before December 20th, allowing hindrances to be plead as an excuse for not attending, and finally ceased altogether.

III. PISA.

Very early, and especially in the 13th century, persons are named as teachers of law in Pisa. Statutes of the city from the 12th century are distinguished by their use of Roman law; and they show even some traces of a university of scholars. Add to this the letter of a friar from Marseilles, (apparently written about the year 1213,) who intended to study Roman law in a monastery at Pisa, yet without distinctly speaking of a school! A document of the 14th century mentions the existence of a law-school in Pisa, but not as a "*generale studium*." The city granted the first considerable sums for salaries in the year 1336, and called eminent law professors. Pope Clement VI issued a decree by which he established, in 1344, a *generale studium* of all sciences in Pisa, which seems to prove that no university had existed there before. The archbishop received the right to confer degrees, but even then the condition of the school was far from being permanent. Want of money sometimes caused a discontinuance of the salaried professorships, and when reestablished, new professors were often called. After the city came under the government of Florence, it suffered severe oppression for a long time, and of a school at this time we can hardly speak. But in 1472 the government of Florence founded a new *studium generale*, and transplanted the school of Florence, a few branches excepted, to Pisa, and appropriated 6,000 florins annually for salaries. In the following year the statutes of the Florentine university of 1387 were introduced at Pisa, but replaced by new statutes in 1478. These statutes, the oldest of this school which exist in print, appear at first glance to be general; but they do not include the faculty of theology, as this formed a separate corporation and had special statutes (from the year 1475.) New statutes were again enacted in 1543, leaving the main constitution of the university unchanged, and have been maintained to the present time. In 1744 the university of scholars was abolished; the rectors and *consilarii* discontinued; a professor, as pro-rector, was to preside over the university, the position being given to the one who had been longest in service, no votes being taken.

The fundamental principles of the constitution, as contained in the statutes of 1478, which undoubtedly originated at an earlier date, are in general similar to the constitutions of Bologna and Padua. The scholars constituted the university, except in the faculty of theology, where the university, from the begin-

ning, was composed of the teachers alone. The jurists and *artistæ* were, it seems, never separated; but the Cisalpines and the Transalpines formed two universities, for in 1340 mention is made of a Citramontane rector. The statutes of 1478 speak of but one rector, who was elected alternately from the Cisalpines and the Transalpines. Pisans and Florentines could neither vote nor be elected, so that here also the university proper consisted of foreign scholars. The rector had civil and criminal jurisdiction, except in cases of murder and theft. After 1473, he received a salary of 40 florins, which was increased to 60 and then 100.

At the head of the school was the archbishop as chancellor. The law-faculty conferring degrees consisted of the professors and some doctors appointed by the chancellor. The fee for promotion in both departments of law amounted to 37½ florins, the single fee to 25. The faculty could give no opinions in law at a less charge than 25 florins. The statutes prescribe daily disputations after the lectures, by the professors, which has been continued to modern times. Annually four salaried positions were given to the scholars; two to jurists, two to *artistæ* and students of medicine: the first with 30, the others with 20 florins.

IV. VICENZA.

In the year 1204, a number of teachers and scholars removed from Bologna to Vicenza. This new school never prospered, and was broken up in 1209; still it has a place in the history of university constitutions. Old documents prove the existence of several rectors, as in most universities, and a document of the year 1205 mentions four rectors—one Englishman, one Provençale, one German, and one Cremonese. Thus (if a permanent arrangement) the constitution divided the university of the Transalpines (as it existed in other cities) into three distinct universities, under three rectors; an arrangement which was carried out still further in the school of Vercelli.

V. VERCELLI.

The school of Vercelli also was without influence on learning, and is important only for the light it sheds on the oldest constitution of universities and the history of Padua. In the year 1228, deputies of the city of Vercelli came to Padua and concluded a contract with the authorities of the university, valid for eight years, to establish a school in Vercelli. The city promised to furnish 500 first class lodgings, the amount of rent to be fixed by a mixed commission, not to exceed in any case 19 liras; also 10,000 liras as an advance for needy students, on which interest should be paid at 2 denares for the two first years, and 3 denares per lira for the next six years, ($\frac{2}{3}$ and $\frac{5}{4}$ per cent.) The capital was to be paid out in Venice, and was undoubtedly destined to relieve the scholars of their debts in Padua. Above all the city engaged to make appropriation for fourteen salaried positions: one professor of theology, three of civil law, four of canon law, two of medicine, two of dialectics, and two grammarians. The salaries were to be regulated by a commission of two scholars and two citizens, the positions to be filled by the annual election of four rectors: in consideration of this, citizens and subjects of the city should pay no fees. The scholars promised on their part to transplant, if possible, the entire school to Vercelli, or at least a sufficient number of scholars to fill the 500 lodgings.

About the constitution, these remarkable documents give the following information :

Four rectors were elected for the new school when the professorships were assigned: for the French, the Italians, the Germans, and the Provençals. This number and division of nations agrees with that at Vicenza; nor was this organization invented for Vercelli, but had been introduced from Padua. On the part of the scholars of Padua, three corporations or *rectoriæ* appear, the one represented by their rector, two by procurators: 1. French, English, and Normans; 2. Italians; 3. Provençals, Spaniards, and Catalonians. From this it is clear that the above-named universities existed early in Padua, but that the contract was made with only three of them, not with the Germans. From this argument it becomes very probable that the four universities formed the old type of the organization of scholars in Italy, certainly in Bologna, the model for the other schools; so that about the middle of the 13th century the three Transalpine *rectoriæ* were every where united into one university. As in Paris also the division was into four nations, one might be led to believe that Italy had imitated the former; but this is contradicted by the complete difference in the division and organization of these nations, and the number only could have been thus copied.

The jurisdiction of Vercelli subjected the scholars to the rector in civil cases, and to the city magistrate in criminal cases. The jurisdiction of the rector is not represented as a new privilege, but as an old right of the scholars, and the criminal jurisdiction of the city as an exception to this privilege: an expression which can only mean that the rectors in Padua possessed at that time complete jurisdiction.

It is not known whether this contract was actually carried out. There are, in the 13th century, some traces of the existence of a school in Vercelli; but it can never have attained any great and permanent success.

VI. AREZZO.

In the beginning of the 13th century, a law-school existed in Arezzo, at which the celebrated Roffredus of Benevent taught (1215.) Statutes of this school, from the middle of this century, exist—the oldest in print of any university. These statutes were drawn up by all the teachers in 1255, and they elected one of their number rector (Martinus de Fano.) Brief as these statutes are, they leave many things obscure, especially in regard to the repetitors, who, as in many modern universities, seem to occupy a position between teachers and students, and in others are never mentioned. The most distinct regulations are these: No one could read *ordinarie* in grammar, dialectics, and medicine, unless he had acquired the degree of doctor. Doubtless this prevailed as a matter of course among the jurists. No teacher should allow the scholars of another teacher to attend his lectures more than four times; the scholars of another teacher being those who had heard that teacher during a week. Any one who slighted this rule was fined 10 soldi for instruction, 3 for use of hall, and 5 soldi for the rector. Every teacher made three collections: one for rent of hall, one for his fees, and one for the beadle. If this document is taken as the statutes of the university, they deviate from all others in this, that the authority seems vested in the teachers exclusively. But this is not probable, and to judge from the contents, they appear to be the regulations for the college

of doctors, whose president is accidentally named rector, while the name of prior is commonly used in other places. This accepted, there can be no doubt that the usual university of scholars, with rectors and jurisdiction, existed here also.

In the year 1356, Charles V gave to the school of Arezzo the privileges of a *studium generale*. In the decree it is said that this privilege had been given before by the emperor, but had been lost during the civil wars. From a doctor's diploma of 1373 it appears that the bishop was chancellor of the school, and based his right to this office on a grant from the pope, but of this no direct evidence exists. Frederic III renewed (1456) the privileges of the school and gave the right of promotions, not to the bishop, but to the city, which exercised it through its gonfalonier, as is shown by several diplomas of doctors from that time.

VII. FERRARA.

In this city a school was in existence as early as the 13th century. There is no reason to believe that it was established by Frederic II, in 1241; but the statutes of the city after the year 1264 guarantee exemption from military service to the teachers, as did also Bologna. In 1391, pope Boniface IX gave to this school the privilege of *studium generale*, and appointed the bishop chancellor. Here also is found the common constitution of the scholars. The jurists and *artistæ* formed separate universities, each governed by rectors, who were elected from the scholars. All the statutes of the *artistæ* of the 15th century have been preserved; but not those of the jurists. The statutes of 1613, which have remained in force to modern times, relate more to the system of instruction than to the constitution, and prescribe sixteen professors of law, namely: one ordinary for civil law, two for canon law, two for the Institutes, one for Bartolus, one for criminal law, and six extraordinary, for occasions of pomp. All information of a more remote date in regard to teacherships and salaries is, as usual, very imperfect. In 1450 there were 9 jurists and 13 *artistæ* among the professors; the former receiving from 22 to 225 liras, the latter from 4 to 150 liras. In 1473, 23 jurists are mentioned, with salaries of 25 to 600 liras, and 29 *artistæ*, with salaries of 23 to 800 liras. There were also some positions with higher salaries; thus Carolus Ruini was paid, in 1509, a salary of 2,000 liras; in 1602, Turaminus, and in 1607, Fachineus, 1,000 scudi each.

VIII. ROME.

It is not generally known that Rome also possessed a university with the ordinary constitution. Pope Innocent IV established a law-school about the middle of the 13th century, and the scholars received all privileges usually connected with the *studium generale*, especially the right, if they possessed clerical benefices, to enjoy their income during their stay at the school of Rome. More detailed information is found in the statutes of the city, which are remarkable and rare. A special chapter treats on the law-school, and refers to a subjoined bull of pope Eugenius IV, in the year 1431, which confers the *studium generale* and other privileges. Annexed. (¹⁷)

Foreign scholars had a privilege of jurisdiction in all cases, civil or criminal, (murder excepted,) and could be tried, as they chose, either by their teacher or the cardinal vicar, or by the rector of the university. The rector was elected by the doctors and scholars.

This school attained its highest success in the year 1514, of which Marini (*Lettera dell' Ab. Gaet. Marini*) has published a catalogue (of teachers.) The privileges of the scholars were then again confirmed. Cardinal Camerlingo was chancellor of the school, and four eminent Romans constituted a board of supervision. It numbered 88 professors, (among them 31 jurists,) and 13 other teachers; a number which was never again reached; 14,000 florins were expended upon salaries.

School of the City.

The learned work of Renazzi, (*Storia dell' universita degli studi, Roma, 4 vols., 1803 to 1806.*) with many original documents, completes and corrects our information on the ancient history of this school. A school (*schola palatina*) was, in very remote time, always attached to the court of the popes. It was this school that Innocent IV enlarged, provided with professors of law, and to which he gave the privilege of *studium generale*, together with the right of conferring degrees, and it followed the papal court every where outside of Rome, especially to Avignon, and was in active operation throughout the 15th century. It is probable that Leo X united it with the school of the city, and thus discontinued its separate existence. The school of the city was founded in 1303 by Boniface VIII, and declared a *studium generale*. The doctors and scholars of this school elected a rector, who exercised jurisdiction. But the right of giving degrees was not possessed until John XXV added it in 1318. In the 14th century the school declined. The statutes of the city in the year 1370, (in manuscript,) order its reestablishment, and that three teachers, each with a salary of 200 florins, should be engaged. However, after a second decline, Eugenius IV, in 1431, reorganized it, and to this reorganization must be referred those statutes of the city above mentioned, in regard to the constitution of the university. In 1458 the university was deprived of the privilege of electing a rector, and the papal government resumed this right. The supervision over both schools, especially the right of conferring degrees, was vested in the camerlingo, (chamberlain,) and only during the absence of the pope from Rome. The supervision of the city school passed into the hands of the papal vicar. This school still continues, under the name of *Archigymnasium Romanum*.

IX. NAPLES.

The school of Naples differed from all Italian schools hitherto described, in its origin as well as its organization. It did not spring up of itself and by the natural demands of teachers and students already present, but was founded in accordance with the will of Frederic II, who loved knowledge and desired that his subjects should no longer visit foreign schools. So he resolved, in 1224, to open in Naples a school of all branches of learning, on an extensive plan, as to which the four letters of Petrus de Vineis give special information. Students were promised great liberties and conveniences; a mixed commission should fix the price of lodgings, and no rent higher than two ounces of gold should be charged. The best teachers in every branch were to be engaged. At the same time all subjects were strictly forbidden to visit foreign schools, or to teach or even study outside of the city of Naples, except in common schools. As Frederic never favored corporations, there is no trace here of a university of the scholars, nor of a rector; but the scholars had their own jurisdiction. They

were under a judge, appointed by the king expressly for the school; and in civil cases, scholars, whether plaintiffs or defendants, could choose between this judge, their teacher, and the archbishop. In criminal cases also this judge alone presided over the trial. The same privilege was given to professors, with the natural modification, that they could choose between the judge and archbishop only. The royal grand-chancellor exercised the highest authority over the university, so that promotions, engagement of teachers, and the order of lectures, were regulated by him. After the close of the 13th century, a rector appears, as assistant and representative of the chancellor, in his relation to the school, the rectorate being permanent and attached to a professorship. During the 15th century the supervision was taken away from the chancellor and vested in the rector; the control of promotions being left with the chancellor. In the statutes of 1610 the rector holds a totally different position; he was a student, elected for one year only, and his duty was to see that the lectures were regularly delivered.

Degrees were conferred directly by the king or the great-chancellor during the first two centuries; for each case the persons who were to examine and grant a degree to the candidate, were appointed at pleasure by him. The remarkable consequence was that not only was the promotion repeated at will, as will be seen from a remarkable example, but when a new grand-chancellor, whose rules were stricter, was appointed, he reëxamined all doctors and revoked the degrees given to many. As the university thus isolated itself more and more from all others, the natural result was that its degrees were nowhere recognized, while the king, to revenge himself or to maintain the right of his sovereignty, refused recognition to foreign doctors, and caused them to be reëxamined and promoted, when they desired to teach in Naples. For example, Jacobus de Belvisio had lectured as bachelor in Bologna for several years, when he asked an honorable position from Charles II, of Naples. He presented himself to the king at Aix, in Provence, in 1297, and was made a doctor by the great-chancellor, in the royal palace. Subsequently the examination was repeated and the degree again conferred in Naples by another great-chancellor. When afterwards he intended to lecture in his native city of Bologna, the degree, twice given, was not recognized, though the king himself interfered in his favor. It seemed without doubt that a new examination and promotion were necessary; but even this was refused for a long time, but was finally obtained after much trouble, making the third. Franciscus de Thelesia had been promoted by Guido de Suzaria and other doctors in Reggio; but when he appeared in Naples, the king did not recognize the degree, and ordered it to be again formally conferred. This uncommon system was abolished in 1428, by establishing in Naples a faculty of degrees, such as existed in all other universities, which should examine and confer degrees after certain rules, and upon which the grand-chancellor exercised only a general supervision. All the members of this faculty possessed a separate jurisdiction under the chancellor or the archbishop, according as they belonged to the clergy or laity.

The engagement of salaried professors was for a long time made by the high chancellor. By the statute of 1610, competition was introduced, *i. e.* an examination of all applicants by the faculty, and the filling the positions by election. This custom, French in its origin, had passed into Spain and was transplanted to Naples by the Spanish government.

With this peculiar organization, and the great efforts made by the government to elevate the school, it is remarkable that it has accomplished less than any other university in Italy. Its historian, Origlia, though acknowledging the inferiority of its present condition, tries to represent its first period as one of great prosperity, and goes so far as to call it the only true university at that time in Europe. But his work shows distinctly that the reputation and influence of this university were at all times very insignificant, and that even Frederic II could not overcome the effects of a defective organization.

X. PERUGIA.

A teacher of law and a few teachers of other branches came to Perugia in 1276, and the city made provision for the establishment and support of a school. A papal decree of 1307 recognized the *studium generale*, and another of the year 1318 conferred the right of giving degrees, the bishop of the city having the same power as the archdeacon of Bologna. Charles IV also gave a diploma to this university in 1355, running as if it were about to be established. Here also the university consisted of the scholars only, they electing the rector, who is first mentioned in 1322. The professors were elected, in part by the city authorities, and in part by the scholars. For a long time no native of the city could obtain a professorship, so that, when Bartolus obtained citizenship, an exception to the law had to be made in his favor. The course of lectures, as in Bologna, was for one year, beginning on the 19th of October. The endowment of the university amounted at first to 1,500 florins, afterward to 2,000, and still later to 2,500. In 1389, Antonio de Butrio was engaged with a salary of 300 florins; he competed for this position with Petrus de Ubaldi, which custom of competitions had been introduced here. The doctors, as elsewhere, formed a college, the oldest statutes of which, from the year 1407, are in print. A peculiar restriction was laid on scholars in Perugia; if they obtained the degree of doctor at any other school, it was declared void, and they became incapable of filling any office requiring this degree.

XI. OTHER UNIVERSITIES IN ITALY.

Besides the universities already named, other institutions existed in Italy during the 13th, 14th, and 15th centuries; mostly law-schools.

PIACENZA, it is mentioned, had a school in the 12th century, at which Rogerius and Placentinus taught, and this school obtained the papal privilege of *studium generale* as early as 1248.

MODENA is known as a school of the 12th century from the history of Rogerius, Placentinus, and especially of Pillius. The latter relates that he was called from Bologna, and that he received about 100 marks of silver (50 pounds weight.) This would seem incredible as a salary, and must mean capital. Such a loan would not be improbable nor without example. In 1260, Guido de Suzaria received the sum of 2,250 liras at Modena, also as capital, for which all citizens should have free tuition; a fine of 1,000 liras to be paid by the party breaking the contract. The school disappears at the beginning of the 14th century, though the statutes of 1328 prescribe salaries of 150 and 50 liras for a teacher of law and for a teacher of a notary's duties and of the institutes.

REGGIO gives proof of the existence of a school in the 12th century. It was very flourishing in the 13th century and had many eminent teachers. This school also was closed about the middle of the 14th century. A diploma of doctor, issued by this faculty in the year 1276, is preserved, which is the oldest

existing. The two examinations were like those of Bologna, but the professors appear only as examiners and as advisers, and the bishop, upon the recommendation of the professors, confers the degree.

PAVIA obtained a *privilegium* of Charles IV in 1361. As early as 1362, Galeaz Visconti forbade his subjects visiting schools outside of Pavia, in which he undoubtedly imitated the former action of Naples. Subsequently, great efforts were made to enlarge this school, as appears from a published catalogue, which contains the names of all teachers who filled the two superior positions; among these are celebrated names, and the salaries were equal to those of the wealthiest universities. Thus Baldus, in 1397, received 1,200 florins; Jason, in 1492, received 2,250 florins; Alciat, between 1536 and 1540, had 1,000 scudi, and between 1544 and 1550 received 7,500 liras as his salary.

TURIN was privileged by the pope in 1405; by imperial decree in 1412; there are no earlier indications of this school. There was there, as is common in Italy, a university of scholars, who elected their rector, the latter exercising jurisdiction. Criminal jurisdiction was reserved to the civil courts, but the rector had a seat in court. The organization of the faculty and the order of promotion was almost the same as that of Bologna and Padua. The bishop of Turin was chancellor.

NOTES.

(1.) This constitution seems to us very objectionable, but it must be remembered that the students of Bologna were widely different from those of our times.

(2.) It is very remarkable that almost all the other Universities in France followed rather the example of Bologna than of Paris, and moreover they were preëminently schools of law, bearing the name *universités des lois*. In similar manner the students at several South German universities were called, in the usual language, jurists, even though they belonged to the other faculties.

(3.) So uncritical was this work that it has not been suffered to appear in print.

(4.) After the charter of foundation, in the charter-book of the archives, is an admonitory letter from Ambrósio to the emperor. No doubt this was regarded as the cause and interpretation of the previous foundation.

(5.) This reason is so natural that it is hardly conceivable how other reasons, without historical proof, can be given; e. g. the emperor bestowed the *privilegium* out of jealousy towards Paris, and to keep the students in their own country.

(6.) This decision of course assumes that as a rule every student has attached himself to one single teacher. Cf. *Baldus ad Cod., Auth. Habita*, num. 75: "I ask what is to be said of the case of a student who attends various lectures, if the case is brought before one of his teachers, can he choose another? and I answer, if one is higher in rank, he ought to consider him as his judge, otherwise he can have his choice."

(7.) That explanation by which *dominus* is used for the jurists, and *magister* for the other professors, is without proof, and is improbable, as there was then no need to provide for any school but that of law. Decidedly erroneous is the opinion of some later writers who understand by *dominus* either the city magistracy or the rector.

(8.) It is, however, quite possible and not improbable that in the earliest times there were more than two universities.

(9.) In later times twenty years were demanded for entire alterations only, while single changes might be made every five years.

(10.) Under these names, as the proper members of the university, they appear in the statutes.

(11.) So, e. g., the eight *statuarii* must be half *legiste*, half *doctrinaliste*.

(12.) Fines occur frequently in the statutes; they were, for instance, imposed for violations of the ordinances pertaining to dress.

(13.) Generally 20 *solidi*, if the expelled individual was a member of the university, but double for a foreigner. If doctor, he paid generally 20 liras, sometimes 100.

(14.) The decisive passage on this point is in the *Stat. Bon. lib. 2. p. 40*. The real meaning of the passage is this: Every one, who teaches without being a doctor, is *bachelarius*, with which agree the passages from the original documents, in which *doctores* and *bachelarii* are mentioned as comprising the whole staff of instructors. But since it might seem doubtful in what case and after what time a person was to be looked upon as really instructing, the statutes decided this more exactly. The etymology of the word is doubtful.

(15.) Thursday was, by old custom, set apart for attention to the person. It was considered the day for the bath. But if a church holiday occurred, the Thursday of the same week lost its privilege, to avoid omitting too many lectures.

(16.) If lectures were delivered upon the *Sextus*, the *Clementini*, or the *Volumen*, then more than two lectures the week were allowed; the university could dispense with this limitation.

(17.) *Statuta urb. Rom.*, lib. 3, c. 90, to which the bull belongs as an addition. The capital itself says that the old imperial school at Rome had been improved by Boniface VIII, that it then entirely died out during the unfavorable times, and was at last restored by Eugenius IV. There are also earlier traces of a law-school, as, e. g., in a charter of 1277, entitled *Angelus Legum Sclarius*. Marini papiri, p. 38.

II. UNIVERSITIES OF FRANCE.

I. PARIS.

In Paris, as in Bologna, the historical accounts of the fame and prosperity of the university reach much farther back than the date of a definite constitution. As early as the 12th century, several very eminent teachers of theology and philosophy were connected with the cathedral school or with several convent schools, especially those of St. Genevieve and St. Victor. (¹⁸)

The oldest genuine documents on the constitution of this school, (for there is one, really written in the middle of the 13th century, but falsely attributed to Boethius, referring to this school,) are two decrees of pope Alexander III. In the first, dating from 1180, he ordains that no person in France shall accept money for the permission to teach, i. e. for the degree. Previous to this order the chancellor received one mark of silver for conferring the degree. The other decree makes a personal exception to this rule in favor of Peter Comestor, chancellor at that time.

More important than the decrees is the *privilegium* of king Philip Augustus, in the year 1200, which many have been tempted to consider (though wrongly) the act of foundation of the university, or at least the beginning of a definite constitution. At that time several scholars had been killed in a riot, and an officer of the king was very much to blame. The king then made the following rules: If scholars (i. e. teachers or students) committed a crime (*forefactum*), the provost of Paris could arrest them, but should deliver them forthwith to the clerical court for investigation and punishment; the rector, however, he could not arrest. When scholars were attacked, the citizens witnessing were not to go away, but to seize the disturbers and surrender them to the courts, and give evidence in the case. To a faithful observation of these orders the provost and other officers and citizens were bound by oath. After that time the provost of Paris was considered as belonging to the university and was called conservator of the royal privileges.

A concordat of the scholars, divided into the four nations, in 1206, over the election of the rector, has not been preserved, but its mere existence, which, from very old documents, is not to be doubted, proves the great antiquity of the division into nations. A decree of Innocent III, in the beginning of the 13th century, is less remarkable for its contents than for the first known use of the word "university."

The Paris school was in many points distinguished from all others. No other school maintained for so long a time its reputation and importance, nor exercised such influence on church and state. It called itself the eldest daughter of the king, and guarded its rank with jealous care; but often the noble sentiment of dignity degenerated into pride and arrogance. If, in any dispute with the civil power, the university could not maintain its rights, it employed, as an extreme means, the resolution to suspend all lectures and sermons by its members. This so excited the populace that they could be appeased only by yielding to the university. As late as 1588, deputies of the university took seats in the diet at Blois. What rendered them especially powerful, even dangerous, was their poverty. The university, the faculties, the nations, all were poor,

and even the colleges, though their expenses were great, could not be called wealthy. The university possessed no building, and its meetings were held in the convents of friendly orders. By this their existence and power became spiritual, and secured a permanent independence of the worldly power, which would have been lost in the possession of great wealth.

The constitution of the university seems not to have been based on complete statutes. A complete code was never enacted, but only an occasional statute, as the condition of things demanded.

In the year 1215 the university received statutes from the pontifical legate, cardinal Robert de Courzon, but these decide only a few points and give no idea of the then existing condition of the university. A statute of the *artista* of the year 1344 has been preserved, which exhorts the teachers to greater caution in their contradictions to the texts on which they based their lectures. There are remaining some minor statutes of the theologians, canonists, and *artista*, partly of the year 1370, which determine the days for lecturing and disputation, holidays, church festivals, etc. More extended were the statutes of cardinal de Estouteville in 1452; but these also were directed only against certain abuses. Of similar import was the reformation of the *artista* in the year 1534. Later statutes, indeed, which were published by the royal commissioners in 1598, and by De Thou in 1600, resemble the statutes of other universities: in fact, all are more or less limited to general good instructions, or are directed to doing away with existing abuses, and give no clue to the constitution of the university. Neither do they apply to the entire university, but are special statutes for the four different faculties.

From the constitution itself it is seen that the Paris university was, from the earliest time, a unit, and that no independent corporations were formed, as in Italy, by the distinction between the jurists and *artista*, or by nations. But this peculiarity is less distinctive than the other, which vested all authority in the teachers, without giving any to the scholars. The general assembly of the university consisted at first of all who possessed the degree of doctor or magister, and these titles were, for a considerable time, given only to the actual teachers of the university. But when it had become a common occurrence to acquire the degree without entering the profession of teaching, a modification was made, first by custom, then by law. As a rule, only actual teachers and professors (*magistri regentes*) had a seat and vote in the assembly; in extraordinary cases, however, other graduates could participate on special invitation, but no trace exists of any influence having ever been given to the scholars. Buzæus indeed considers that there was a larger general convention, including the scholars, but his reasons are not convincing. He can instance no one case where such a convention was held. (*)

This constitution was the main basis of the greater power and influence of this university, which the Italian schools never could acquire, having no other object than to increase the freedom and often to add to the license of the scholar, and to attract distinguished teachers. The Paris university obtained more special importance by its connection with learned, and especially theological disputes; and though the judgment did not always proceed from the whole university, but from one faculty, yet the connection of the whole with its parts was so close that the latter could give to these decisions the weight of the whole university, and not seldom such decisions and interpretations of a single faculty were considered as the action of the whole university.

The divisions of the Paris school are not so easily understood as those of other universities. From the earliest period only four nations existed, and this number continued the same. These nations were the French, the English or Germans, the Picards, and the Normans, each having subordinate provinces. In the first nation there was, among others, a province of Bourges, which included also Spain, Italy, and the Orient. The second embraced, besides England and Germany, also Hungary, Poland, and the Northern kingdoms; it was first called English nation, but changed to German in 1430. The third nation included the Netherlands. To these nations belonged professors and scholars, according to their native country, without distinction of studies. About the middle of the 13th century, the university became involved in a long and severe dispute with the new mendicant friars, who, supported by the popes, demanded positions at the university, but were not admitted. This quarrel caused all the doctors of theology to separate from the university and form a special college; their example was followed by the canonists and doctors of medicine. Henceforth the university consisted of seven unequal parts, the three above-named faculties, and four nations. The faculties were conducted and represented by their deacons, the nations by their procurators. The four nations were in truth the old university, and went by that name. They remained in exclusive possession of the rectorate and jurisdiction; and the bachelors and scholars of theology, of canon law and medicine, remained with them, as the faculties consisted only of the doctors in these studies. In the course of time a complete change took place. The four nations together were considered as a fourth faculty (of artists) and gradually deprived of their former position, but even then they retained the rectorate. Every faculty had its own lecture-rooms, for the exclusive use of its teachers; also a church in common. So, for example, the canonists had the church of S. Jean de Lateran, where they not only attended divine service together, but held their meetings, and gave degrees.

The colleges demand special notice, as they were more numerous and more influential than those of Italy. Originally intended only for the support of poor scholars, who lived in them under special supervision, the number of teachers in them increased, and the colleges soon became not only foundations for the poor scholars, but pensionates for the wealthy, so that almost the entire body of students belonged to the colleges, and as early as the 15th century, those outside of the colleges were as exceptions, characterized by a special name (martinets.) The oldest and most reputed of these colleges, the Sorbónne, founded in 1250, has often been confounded with the faculty of theology, from which it was essentially distinct, though afterwards the same persons were members of both corporations.

The rector was always the head of the university, and this dignity, even after the new organization of the university, remained the exclusive possession of the four nations or the faculty of philosophy. The doctors of the three faculties could not become rectors, nor participate in their election; both privileges were reserved to the magisters and artists. Even if the rector, during his term of office, wanted to take the degree of doctor, he was required to resign the rectorate. At first he was elected by the procurators of the nations, but after 1280 by four electors appointed for this purpose. The electors must be thirty years of age, but for the rector this limitation was not prescribed. An election was held every four or six weeks in early times; but, after 1279, only once in

three months. The rector could not be a married man; but he was not required to belong to the clergy.

Besides the rector, two conservators were chosen as superior officers of the university. The provost of Paris was conservator of royal privileges and stood in close relation to the university. The last oath of this officer occurred in 1592; after which time the office declined and afforded no longer any protection to the university. On the contrary, the dignity of a conservator of pontifical privileges was rather an honorary, and rarely considered an actual office. In earlier years this dignity was arbitrarily and temporarily conferred on theologians; afterwards, however, it was limited to the three bishops of Meaux, Beauvais, and Senlis, one of whom was nominated by the university. After the close of the 16th century, this office also was abolished.

The jurisdiction over the university of Paris and its members seems very intricate, and the statements of eminent historians are unsatisfactory. As a whole the university was formerly under jurisdiction of the king in person; after the middle of the 15th century, under that of the parliament of Paris. The criminal jurisdiction over members was, by privilege about the year 1200, vested in the spiritual court (i. e. the *Officialat*) of Paris; but as early as the 15th century the university sought to free itself from it, and the increasing power of parliament soon absorbed this power. In regard to the ordinary civil jurisdiction, there is more doubt. Though the *privilegium* of Frederic I was given only for the university of Bologna, in the kingdom of Lombardy, it would not be surprising to find some application of it in Paris, since it appears that it was thought that, from internal reasons, the decisions therein were universally applicable. Distinct traces of a jurisdiction of teachers over their own scholars are found, though this may not have been exercised frequently nor continued very long. The principle, however, is expressed in a decree of pope Alexander III, not for the Paris university, but in reference to the cathedral school at Rheims, and is found more clearly expressed in the statutes of Paris of the year 1215. The bishop's court also had in all probability civil jurisdiction, and seems to have exercised it ordinarily; as is seen in the resemblance of the civil to the criminal jurisdiction of this court; also from a decree of pope Celestine III, of the year 1194, which indeed does not speak expressly of the Paris university, but is very probably to be referred to that. Some cases and trials are mentioned, in which the clerical court exercised such jurisdiction. But in 1340, civil jurisdiction was committed to the provost of Paris. At that time the king gave important privileges to the university, namely, that its members could appeal to the laws in Paris, as plaintiffs or defendants, without regard to the courts of their native country. Here at first only the local jurisdiction was meant, and the new extended right might also have been intrusted to the Paris *Officialat*, but since the king assigned to the provost the carrying out of the whole order, the whole civil jurisdiction passed over to him at the same time. This is the court of the *Chatelet*, which maintained itself after the provost no longer presided over it, and which yet continues.

Very different from this was the jurisdiction belonging to the university itself. This covered no criminal trials nor ordinary civil cases, but only matters relating to the school; e. g. the office of teacher, whether it caused disputes between teachers, or between teacher and scholars; offenses against the rector on the part of members of the university; the discipline of scholars: finally

disputes on questions of house-rent, books, writing materials, in which a member of the university appeared as prosecutor or defendant. This court had power to exclude teachers from the university. In regard to the discipline of scholars there was a great contrast between Paris and the Italian schools; for flagellation with a rod was a very common punishment, inflicted on the bare back of the culprit, in presence of the rector and the procurators. This punishment was taken for granted in the year 1200, and was still very common in the 15th century; it was applied to *bachelariens* as well as to scholars. In older times the university exercised this jurisdiction by special deputies, i. e. commissioners selected for each case; but as the disposition and management of all current affairs came to the rector and the procurators in 1275, it included also this jurisdiction; and as in all affairs the three deacons belonged to this commission, they likewise formed part of the court. In this form the jurisdiction is recognized by the statutes of the year 1600, and has so continued up to the latest times. Appeal could be taken from the rector to the university, from the university to the parliament, when the former had in vain attempted to maintain its dignity. The conservator of pontifical privileges had also a kind of jurisdiction, in criminal and civil cases, but only those in which clerical privileges had been impaired, and in such cases he was regarded as a permanent commissary of the pope, who otherwise would himself have rendered decisions.

Degrees were given in all cases with the approbation of the cathedral chancellor, or, in the philosophical department, of the chancellor of St. Genèviève, so that in this faculty the applicant could choose between the two. In older times this held good for all faculties. It has already been mentioned that in the 12th century the pope forbade the chancellor receiving fees for promotion, and permitted it again by personal dispensation, after which this point was always a subject of dispute. In regard to the fees and expenses of promotion, no complete information can be found. Formerly they cost 4½ *bursen*, and a *bursée* generally amounted to the necessary expenses of a week, which varied very much, according to rank or wealth. In the statutes of 1452 this tax was continued, with this limitation, that a bachelor should not pay more than 7, a licentiate not above 12 gold *écus d'or*.

In regard to the learning required for promotion, the statute of the canonists contains the following provisions, from the year 1370: Those who had already obtained the degree of licentiate of Roman law were examined no further; all others, after having heard lectures on canon law for forty-eight months in the space of six years, and read lectures during forty months within five years, could become licentiates. If they had studied both systems of law, it was enough to lecture sixteen months within two years. The scholar was required to obtain a quarterly certificate from his teacher in regard to his attendance at the lectures, and the bachelor from the doctor under whom he read, or from the dean of the faculty. In early days, celibacy was required, not only of all theologians, who of course were of the clergy, but of all professors also, as the whole university was considered a clerical institution. In 1452, physicians were exempted from this rule; and afterward by the statutes of the year 1600, the canonists also; but for the *artistes* it continued even to the most recent times. The faculty of the canonists consisted of six professors. Vacancies were filled by a general election among the remaining, after having examined all the candidates. In the year 1541, the jurists, three hundred in number, de-

manded the same privilege in filling professorships as the constitution granted to other universities, and they petitioned parliament, but without success.

With reference to the principal work of the university, the lectures, the subject of Roman law first presents itself. It should be recollected that in the early mediæval period the Roman clergy showed a great veneration for the Roman law and were governed by it, and knowledge of it was preserved and diffused chiefly by the clergy, but in the 12th century this study was no longer considered suited to their profession. Not that the Roman law itself was disapproved, or its pagan origin thought offensive; the cause lay in the entirely new direction taken in religious studies. Theology on the one hand, jurisprudence on the other, were enthusiastically cultivated; and many distinguished men devoted all their energies to one or the other science, gain in one being considered a loss in the other. Theology naturally appertained to the clergy, and if any of its members, from the universal taste of the age or temporary advantages, devoted themselves entirely to Roman law, they were loudly censured. Thus St. Bernhard, about the middle of the 12th century, complained that in the pontifical palace the law of Justinian was heard, but not the law of the Lord, and hence proceeded all that legislation, now to be described. This explains also how the canon law, as a beneficent medium between the conflicting interests, found a welcome reception.

Most of the legislation above referred to the clergy as a whole, or to some branches of the clerical service. The council at Rheims, in 1131, prohibited the friars from studying Roman law or medicine. Besides the reasons before stated, another was added, namely that they were obliged to leave their convents for a long period in order to pursue these studies. This prohibition was repeatedly renewed; in 1139, at the second council of the Lateran; in 1163, at Tours, and in 1180, in the decrees of pope Alexander III. It was further extended in 1219 by a decree of Honorius III, which we possess in three parts; the part with which we are concerned included all priests also in this prohibition. Another part of the same decretal assigns the above grounds, and commands that the number of theological professorships be increased. However, the law in this form could not be strictly enforced, and the parish priests were soon again exempted from its operation. Yet more important were the very frequent dispensations granted by the pope to certain schools, and by the decree of pope Innocent IV, the scholars of the Roman law-school might retain their foreign benefices. When, later, Bindus de Senis taught Roman law in Rome in 1285, Honorius IV permitted all the clergy to hear him, excepting only bishops, abbots and friars. A similar dispensation, and as it seems without any reserve, was granted to the school of Bologna in 1310, and reënacted in 1321 and 1419. So to the university of Pisa, in 1344. The dispensations generally passed beyond the prohibition, since they not only permitted the study, but allowed the clergy to draw their prebendary income while absent.

This law of Paris was based on similar considerations. The third article of the decree of pope Honorius III, in 1220, prohibited, for Paris and its vicinity, all lectures on Roman law, because it was never employed in the courts. The general character of this law shows that it was not limited to the clergy. Its cause is not doubtful. The university of Paris was mainly a theological school, and therefore it was logical to apply the same prohibition which had already, in another part of the document, been given to consecrated priests, and to those

scholars who were destined for the ministry. It is possible that two parties may have contributed to this result, who at any rate were much interested in its success, viz., the Parisian theologians and *artists*, to whom the students of Roman law could do a great deal of injury, and secondly, the other law-schools, especially that of Bologna, the influence of which in Rome was very considerable. In favor of this view is the circumstance that the execution of this law was carefully watched by both sides. Thus in the 16th century the Paris canonists desired to teach Roman law also, when the other faculties prevented it by resolutions, or through parliament. In 1572 the Paris canonists were tried before parliament, at the instance of several French law-schools, because they taught and gave degrees in Roman law, and parliament decided against the canonists. Neither can this law be considered an arrogant action on the part of the pope, for the Paris school was known as the chief controler of all instruction in theology, was therefore considered a clerical institution, and had been placed under the special care of the pope; and if the latter could, through his legate, in the 13th and 15th centuries, proclaim new statutes for the university without contradiction from the king, and with the express sanction of the university, no doubt could be raised against the legality of that provision. Not long after enacting this prohibition, Innocent IV sought to extend it over France, England, Scotland, Spain, and Hungary, with the approbation of their princes. The reasons for this new prohibition are not known; for in some of those countries it was unnecessary, and others, especially France and Spain, seem not to have been affected by it.

The real fate of the Roman law in the Paris university is not yet fully known. Theology and philosophy had always been the main studies, but in the 12th century the Roman law also was zealously cultivated. Giraldus Cambrensis, who studied in Paris about 1180, after which he became teacher, heard lectures on Roman law. Still more distinctly are lectures on the Pandects mentioned by another Englishman, Daniel Merlacus. A historian about the year 1200 gives a glowing picture of the condition of the school, in the description of which he expressly speaks of the Roman law. So that the prohibition of Honorius III was very important, because it not only prevented the future formation of a school of Roman law, but suppressed the existing one, and continued in force through several centuries; for though the canonists often endeavored to draw the Roman law into their sphere of studies, and though it was actually taught in some few cases, this instruction was not based upon a complete law-school, and no learned degrees could be conferred. In the year 1433 the university vainly opposed the establishment of the university of Caen, and offered to adopt the Roman law; which proves that the said prohibition was still observed. The vain attempts to introduce the Roman law in the 16th century have been referred to before. As, however, civil disturbances rendered traveling to other universities dangerous, parliament in 1568 permitted Roman law to be temporarily taught in Paris. In the year 1576 it gave this liberty to Cujacius, through personal esteem, and allowed him also to confer the degree of doctor of Roman law. Three years afterwards, the diet of Blois renewed the prohibition. Also in the statutes of 1600 it is clearly premised that the recognized subjects of study included no other law than canon law. Finally the old law was abolished by an edict in 1679, and the university obtained equal rights with any other in this respect.

What is incomprehensible in this exclusion of Roman law is that there con-

stantly existed a faculty of canonists, although canon law can never be understood without the Roman law. But the statute of the canonists of 1370 expressly orders that one shall have the power to obtain the degree and to lecture, without having studied Roman law; but this can only mean that it should not be necessary to go through a complete course at another university. Introductory lectures on Roman law were certainly delivered at Paris, and the law could have no reference to them, but only to extended courses upon the law-books themselves, that is, the connected course necessary for a degree.

Public lecture-rooms were very numerous and of different kinds; they belonged in part to the various faculties and were destined for the common use of members and in part for single *collegia*.

Fees are not mentioned, except in modern statutes of the *artistes*; and were to be given voluntarily, consequently not by the poor, and should not exceed six gold dollars to each teacher annually.

NOTE.

Prof. de Viriville in his History of Public Instruction in Europe gives the following list of the ancient French Universities with their dates and founders:

CHRONOLOGICAL LIST OF THE ANCIENT FRENCH UNIVERSITIES.

- 1100 to 1200—*Paris*—First legislator known, Philip Aug., King of France.
- 1180 (*about*)—*Montpellier*—First founder, William, Lord of Montpellier, confirmed by Pope Nicholas IV. in 1289.
- 1292—*Gray*—The Emperor Otho transferred to Dole in 1423. (See Dole.)
- 1223—*Toulouse*—Pope Gregory IX.
- 1246 to 1270—*Angers*—St. Louis, at the instigation of Chas. I., Count of Toulouse.
- 1303—*Avignon*—Boniface VII., Pope. Chas. II. of Sicily.
- 1306—*Orleans*—Clement V., Pope. Philip the Fair, of France.
- 1332—*Cahors*—Jean XXII., Pope.
- 1339—*Grenoble*—Humbert II., dauphin, transferred to Valencia by Louis XI. when dauphin in 1452.
- 1364—*Anjou*—Louis II., Duke d'Anjou.
- 1365—*Orange*—Raymond V., Prince of Orange.
- 1409—*Aix (Provence)*—Alexander V., Pope.
- 1423—*Dole (Franche-Comté)*—Philip-the-Good, Duke of Bourgoyne, joined to Besançon, by Louis XIV. in 1691.
- 1431—*Poitiers*—Pope Eugene IV., Charles VII. of France.
- 1436—*Caen*—Henry IV. of England, confirmed in 1450 by Charles VII.
- 1452—*Valence (Dauphiny)*—See 1339 *Grenoble*.
- 1460—*Nantes*—Pius II., Pope, François II., Duke of Bretagne.
- 1464—*Besançon*—Philip-the-Good, Duke of Bourgoyne. See 1423 Dole.
- 1468—*Bourges*—Louis XI. of France.
- 1472—*Bordeaux*—Louis XI. of France.
- 1548—*Rheims*—Henry II. of France.
- 1572—*Douay*—Philip II. King of Spain.
- 1572—*Pont-a-Mousson*—Charles II., Duke of Lorraine.
- 1722—*Pau-en-Béarn*—Louis XV. of France.
- 1769—*Nancy*— " " "

To this list of the principal universities must be added the following, of a secondary rank:

Nîmes—College, or University of Art, founded in 1539 by Francis I.

Rennes—University, or Society of Law, formed from a division of the University of Nantes, transferred to Rennes in 1734.

Saumur—Academy or Protestant University existing in 1664.

Strasbourg—1 Protestant University, founded in 1538, enlarged in 1566, and endowed with four faculties in 1621. 2 Catholic University, established at Moisisheim in 1618. and transferred to Strasbourg in 1701.

II. MONTPELLIER.

According to the common tradition, pope Nicolas IV founded the university of Montpellier in 1289, and placed it under the supervision of the bishop of the diocese. This, however, can not be regarded as the origin either of the school or of its constitution as a university, nor of the right of the bishop. The oldest documentary evidence refers to the school of medicine. To the scholars of this faculty, William, Lord of Montpellier, promised in the year 1180 that he would grant to no one the exclusive right of teaching, but would allow liberty of instruction to all. New statutes were given to this faculty of medicine by a papal legate in 1220, which still exist. The qualification for teaching is made dependent on the examination and the approbation of the bishop of Maguelonne, who was to gather teachers about him.

King Louis IX, of France, gave to the bishop of Maguelonne, in 1230, the privilege of administering the oath to all licentiates and doctors of canon or Roman law, when they received their degree. Nothing is said of a superintendence over the promotion, but it shows clearly that a faculty of jurisprudence existed, and that degrees were conferred by it. In the year 1268, James I, of Arragonia, under whose rule Montpellier was at that time, appointed a professor of law. The bishop excommunicated this teacher and all who should hear him, because he alone could give license to teach, and defended his course, not upon preceding exercise of that right, but on the ground of his relation to other faculties, declaring that it was only accidental that this right had not been extended over the faculty of jurisprudence. Pope Clement IV wrote to the king in support of the bishop.

In 1242 the *artistæ* received statutes from the bishop, but this was with the consent of the university, the doctors as well as the scholars. These statutes recognize the right of the bishop to license teaching, and also incidentally mention the rector. These events were followed in 1289 by the bull of Nicolas IV, which declared that, as the city of Montpellier was distinguished and worthy of a school, it should in future have a university of canon and Roman law, of medicine and the liberal arts (all the faculties, theology excepted.) Promotions in every faculty were to be made by the bishop, after an examination, and the bishop should accept the aid and advice of the professors. A mere glance at this instrument would give the impression that the pope founded, in reality, a new school here, or at least gave to the bishop new rights over the same. But both are completely contradicted by the commencement of the bull, in which an already existing school, a university, is expressly implied. In fact, then, it could only have been the purpose of the pope to bring forward here the new views by which all universities were to be confirmed to the papacy, and to confirm himself in the possession of these rights. The only practical part of the bull is that it extended the authority of the bishop over the faculty of jurisprudence also, where it had been disputed; but in 1339 vexatious disputes broke out between the bishop and the rector of the law university. Cardinal Bertrand, archbishop of Embrun, (died 1355,) was instructed by the pope to act as mediator, and with six delegates of the university he drew up new statutes, which were proclaimed, July 20th, 1339, and have ever since remained the foundation of the constitution.

There was a school of theology here, at least as early as the middle of the

14th century, for in the year 1350 king John permitted the magisters, bachelors and scholars of the theological faculty in the university of Montpellier, to be preceded in procession by beadles with silver sceptres. Pope Martin V recognized this institution, which needed such a recognition most of all, as late as 1421, by uniting it to the university of the jurists. At the same time, statutes for the faculty of theology were enacted in the form of a contract between the university of jurists and the teachers of theology, in which the relations between the former and the new faculty were determined. The school of theology belonged to the four mendicant orders, and was named after them.

In this manner the organization of the school was established and was as follows: There were two universities, that of medicine, which formed a unit by itself, and that of law, which may be called the general university, as the *artistæ* and theologians formed no special university, but were included with the law-school. As this differs from the perfect constitution of Italian universities, and agrees with their oldest condition, it will need further proof. Only one rector, as the head of the entire university of Montpellier, is mentioned, who was the rector of the jurists, and was alternately designated by one or the other name. But quite decisive evidence is seen in the fact that the pope combined the faculty of theology, teachers, and scholars, with the law university, and subordinated them to its rector. Now this university had in general a constitution similar to the Italian, the scholars alone having the full right of citizenship. Considering these two circumstances, the preponderance of the jurists and that of the scholars, in which respect the constitution was quite unlike that of the Paris university, it becomes evident that the university of Montpellier was organized after the models of Italy, and this must have been at a time when, in Bologna and Padua, the *artistæ* did not constitute a separate university. It may be said of all ancient French universities, strange as it may seem, that they were not modeled after that at Paris, and with few exceptions, all had the title of "*universités de loix*," i. e. of law. The popes liberated the university of Montpellier at an early day from the legal restrictions in regard to the clergy, so that all ecclesiastics, even monks, could there study medicine and law.

The scholars of law thus formed the university proper, as the *artistæ* and theologians had been adopted into the corporation only, and the doctors of all branches, as in Italy, possessed only limited privileges, though they shared the duties of the scholars. The latter divided themselves into three nations: Provençales, Burgundians, and Catalonians.

The rector, as the head of the university, was elected for one year, alternately from one of these nations, and confirmed and sworn in by the bishop. He was required to be twenty-five years of age, and to belong to the clergy. Doctors were not qualified for this office. The rector preceded in rank all officers of the university and all doctors, and in the 16th century he was so honored that when he appeared in the street the scholars followed as retinue. The rector's council consisted of twelve members; one of them was the canon of the cathedral of Maguelonne; one an inhabitant of Montpellier; the ten others were taken from the provinces of the nations. Every councilor must be twenty-five years of age and belong to the clergy. The election of a rector was made by the councilors, not by the scholars, in which the constitution appears more aristocratic than that of Bologna. A relative majority was required and the retiring rector had the deciding vote in case of a tie.⁽²¹⁾

As sub-officers the statutes name a *generalis bidellus* (beadle) and as many ordinary beadles as there were ordinary doctors. Moreover, pope Martin V, in 1421, gave to the university three *conservatores*, the archbishop of Narbonne, the abbot of Aniane, and the provost of Maguelonne, with authority to appoint their alternates. Soon afterwards, pope Nicolas V connected this privilege with the university by giving the latter power to nominate the representatives of the conservators. Entirely different from this was the constitution of the university of medicine. One of the professors, with the title of medical chancellor, who filled the position during life, presided over it, and was elected by the bishop and three professors. Moreover, they had two conservators, the bishop and the governor of the city.

The jurisdiction was arranged as follows: The bishop exercised criminal jurisdiction in the law university. King John had, in 1350, given the civil jurisdiction to a royal officer (*judex parvi sigilli*;) but pope Martin V turned it over to the above-named conservators, i. e. their representative, and this order is recognized in a royal privilege of 1437. In the university of medicine, the bishop likewise had criminal jurisdiction; in civil cases its chancellor acted as judge, with appeal to the bishop. As in Paris, all had the privilege of trial in Montpellier, as defendants under all circumstances, as plaintiffs only when their opponent lived within six days' journey of this city.

The degree, in all faculties, depended on the approval of the bishop, who for this reason was named chancellor (*cancellarius*), and must not be confused with the cancellarius of the medical school. The jurists held the examination before the solemn ceremony in the church. As a rule one could become bachelor after six years of study, and bachelors could apply for the degree of doctor after five years' additional study. The form of promotion was similar to that of Bologna, consisting in a private examination, to which all the doctors were invited, and the public examination in the church. In connection with the latter, the desk, book, cap, kiss and blessing are mentioned as insignia; at the same time the first solemn address upon some law was delivered by the new doctor, in the church (*solenne principium*.) The bull of 1289 had decreed that no money should be paid for degrees, and the statutes repeat this injunction, also prohibiting the customary doctors' dinner, and according to the well-known papal order, fixing a maximum of expenses for pomp. Every faculty of promotion had a chairman, called *prior* among the jurists, *dean* (*decanus*) among the others. But the jurists formed only one faculty, in which students of canon and civil law were united. Of salaries, those of the medical faculty only are mentioned. In 1490, two royal professorships were established, each with 250 livres, which, in 1564, was increased to 550 livres.

The statutes contain exact regulations pertaining to the lectures, which show a zealous supervision of instruction. Every one was entitled to lecture who had received the degree of doctor in Montpellier or at any other *studium generale*; also bachelors, and even scholars about the time of receiving the degree of bachelor. Four hours daily were fixed for the lectures: *prima matutina*, *tertia*, *nona*, and *vesperarum*, 7 and 10 A. M.; 3 and 5 P. M. The lectures on Roman law were thus distributed: the first was *hora doctoralis*, in which only the *doctores ordinarie legentes* could read. From year to year alternately they explained in this hour the *Codex* and the *Digestum vetus*. As, however, one year was no longer sufficient for an understanding of these books, the following plan was adopted. The regular teacher brought forward only fourteen books

of the *Digestum vetus*, Books 1 to 8, 12, 13, 19 to 22, with the exception of two titles of the 1st and one of the 21st, and the remainder by one or more specially elected doctors or bachelors during the *hora vespertina*. The same order was followed in regard to the *Codex*. In the morning a part of the 1st and 7th books, and books 2, 3, 4, 6 entire, the rest in the evening. During the two hours between, the bachelors always read that ordinary book, which was not read by the ordinary teachers in that year, i. e. the *Digestum vetus* or the *Codex*. Moreover, the *Institutes*, and finally the *Infortiatum* and *Digestum Novum* occupied these hours. Owing to the great mass of material, the same difficulty occurred here, and each of these books was divided between two teachers. One half was called the *Ordinarium digesti novi*, although the whole was a *Liber Extraordinarius*, the other the *Extraordinarium* of the same; the first comprising books 1, 3, 4, 6, 7, 8, 12, the second the rest. So, too, the *Infortiatum* had its *Ordinarium*, to which belonged the title *solutio matrimonii*, and books 4 to 9 and 11; the rest was *Extraordinarium*. The evening hour was given to completing the ordinary lectures, also to the *tres libri*, the *authenticum*, and feudal law. No other lectures could be given at these hours. The beginning and end of the lectures were distinctly fixed in the statutes, though differing according to the various books used. Those over the *Digestum vetus* lasted from Oct. 19 to Sept. 29; over the *Codex*, from Oct. 19 to Aug. 31. Ordinary teachers, and those who completed the ordinary lectures in the evening hour, were required to read for fourteen days *secundum puncta*, assigned to them by the rector and counselors. No doctor was permitted to communicate in writing the contents of his lecture, except in those cases where controversies could not be fully treated in the remarks. Lectures were held every day, excepting on specified holidays, so Thursdays were not holidays. The doctors were also required to hold repetitions; bachelors were not allowed to; foreign doctors, while traveling through, could hold repetitions, and the natives were compelled to give them a chance. All doctors being entitled to lecture, an unlimited competition was opened.

As to fees, they were expressly recognized in the statutes (1220-1242) respecting the *artista* and students of medicine. The statutes of the jurists prescribed two collections for every ordinary lecture, one for the teacher and another for the hall, the first amounting to 10 sous, the latter to 5 sous, or whatever more might be voluntarily given. Nothing was paid for other lectures, except by special agreement, and then only 8 sous. The extraordinary evening lectures were free of charge, unless by special agreement. Every doctor had a beadle who superintended the hall and the books, and received 12 deniers from each hearer.

In regard to the loaning of manuscripts, the following was prescribed: The general beadle was obliged to keep on hand all the text and glossaries on canon and Roman law, the *Lectura Hostiensis*, the Commentary of Innocentius, Johann Andreä on "Sextus and the Clementines." Also whoever chose, especially the sub-beadles, were allowed to loan books, but if the latter contained falsifications or errors, they could be confiscated for the benefit of the university to be amended, and if they could not be amended they were burnt. The hire for books, if they were to be copied outside of Montpellier, amounted to two deniers, double the price in the city. If a manuscript already in existence was to be corrected from them, the rent was less.

In the statutes of the theological faculty, equal privileges of rank were pre-

scribed between the prior of the jurists and the dean of the theologians; between the doctors of law and the magisters of theology. The prior preceded in all solemnities of the jurists, and the dean in those of the theologians. In the third place the precedence was alternated from year to year. It was expressly decided that the theologians could pronounce from memory or read from manuscript. None of the mendicant friars, consequently no teacher of theology, could become counselor of the university.

In the faculty of medicine the remarkable arrangement existed that four bachelors should be annually elected to assist the scholars in their studies and to recommend the best text-books to the professors. Many other interesting glimpses at the customs of the 14th century can be found in the statutes, *e. g.* in the provisions concerning dress, play, arms, the prohibition against breaking into houses during carnival, to steal meat; and that against disturbing the lectures. Scholars belonging to the nobility, according to ancient custom, were equal in rank to the doctors, and preceded the licentiates. A regulation of the year 1424 described the style of living necessary for one who would be considered a nobleman.

The following is the original statute concerning the election of the rector and counsellors at the University of Montpellier:

The rector is always to be a clergyman, born in wedlock; he as well as the counsellors is to be a prudent and peaceful man, of mature age, of tried probity rather than of noble birth. About the middle of the month of January the rector calls together all the counsellors, and when they are assembled he informs them that the object of their meeting is to elect a new rector and new counsellors. After imposing an oath that they will vote for such rector and such counsellors, as they believe will be an honor and benefit to the University, and that till the rector and the new counsellors are publicly announced, they will not reveal their vote to any one; the rector takes the ballot, first of those, from whose nation the rector and counsellors are to be elected this year, and then of the others; if there are two candidates for the rector's place, with an equal number of votes, the rector is authorized to choose the one whom he considers the most eligible, and if there are three or more, with an equal number of votes, the rector may elect whom he thinks best; if he cannot arrive at any decision on that day, then the second or third day. When the rector and the counsellors have been elected, their names are inscribed in a book kept for that purpose.

In other particulars the statutes and practices of this school are the same as those of Paris.

(18.) Bûlès throughout considers Charlemagne as the founder of the Paris university, and starts in its dates from him; but this opinion is without proof. For however much Charles was interested in the cause of schools, there is no evidence that he had any connection with this university.

(19.) His reasons appear to be: 1, an accidental remark in a manuscript of unknown time or origin, that students also had been convocated; 2, the very general formula *Universitas magistrorum et scholarium*. These prove nothing, because the students belonged, of course, to the university, whether they had any voice in its government or not. This explanation is confirmed by a document beginning with, *Rector et Universitatis magistrorum et scholarium*, and closing with *Dat. m Parisiis in no tra congregatione generali Magistrorum tam regentium quam non regenti*. Moreover we sometimes have the formula running *Universitas Magistrorum*.

(20.) This filling the professorships by election, was in the latest times introduced again in the French universities.

(21.) P. Rebuffi complains of the indiscretion of many rectors, who on trifling pretexts went into the streets, and so disturbed the lectures. He himself had lost much time in following these processions. Finally this obligation was expressed in the oath of the students.

III. ORLEANS.

A school, in all probability a law-school, existed at Orleans at a very early day. The first distinct indication of this is found in the account of a violent fight between citizens and scholars in the year 1236, in which several foreign students, of noble families, were killed. A pontifical *privilegium* was granted by Clement V, in 1305, which states that the reputation of this school had been for a long time great in both branches of the law, especially in Roman law, and the pope was indebted to it for his education; he therefore recognized it publicly, giving to it the privilege of promotion and the *privilegia* of Toulouse (the same as of Paris.) The king confirmed this foundation in 1312, with a remarkable condition. It is strange that this school of Roman law originated so early in Orleans, in a portion of France in which the Roman law had no authority, and for this reason the king expressly declared that this confirmation of the law-school should make no change in the system of law there used. Thus only a law-school was established, which it has remained ever since. The addition of a faculty of theology and philosophy was impossible on account of the jealousy of the neighboring university of Paris.

The scholars were divided into ten nations, which, in 1538, were reduced to four, and at the head of each nation was a procurator. The assemblies of the university consisted of the professors and procurators of the nations. The German nation had special privileges, its members, without distinction, enjoying the privileges of nobility. They possessed a considerable library, and their affairs were conducted by twelve senators, half of whom were required to be Germans proper, the other half Netherlanders; also one-half Catholics, and the other Protestants. Among others, this nation had, as late as the 18th century, the singular right of free entrance to the theatre and to the first seats in the same.

A rector presided over the university, who at first was elected by the professors and procurators; afterwards by the professors and the procurator of the Germans. It is nowhere recorded whether scholars could obtain the office of rector, but in 1307 and 1320, doctors appear as rectors.

Two royal officers, as conservators of the university, the bailiff and provost, administered the civil jurisdiction. The members of the German nation, by special privilege, were subject to the bailiff. Criminal jurisdiction was first vested in the bishops, but after 1520 in the royal officers also. The jurisdiction of the rector related without contradiction only to matters of the school or of discipline.

Professors were appointed by election, after a competitive examination of candidates, in which the royal and city officers had an advisory voice. In 1512 there were among the ordinary professors five of civil and three of canon law; afterwards this number was reduced to five. Until the year 1583 they received no salary; afterwards 600 and 800 *écus* annually.

The promotions were under the supervision of the dean of the cathedral, whom pope Clement V had first appointed chancellor of the university. There are no more detailed accounts of the earlier period. At the beginning of the 17th century it was in great favor, on account of its cheapness, and many Germans obtained their degrees there.

IV. TOULOUSE, VALENCE, AND OTHER UNIVERSITIES IN FRANCE.

There are but few of the other French universities whose history and constitution are at all known.

Toulouse.

The university at TOULOUSE was founded by pontifical decree in 1233, for the purpose of suppressing the Albigenses. Count Raimund IV, of Toulouse, had protected them, but in his submission was obliged to give the sum of 4,000 silver marks, to be expended to found a new university, for the support of four teachers of theology, two of law, six *artistæ*, and two teachers of grammar. For a theologian, 50 marks yearly were assigned; for a decretist, 30; for one of the *artistæ*, 20; for a grammarian, 10. This bull therefore established a university for all the sciences, (none being specially named or excepted,) and it gave to the new institution all the privileges of Paris, especially the clerical jurisdiction in all cases where its members appeared as complainant or defendant. According to a pontifical decree of the year 1245, the chancellor of the cathedral was at the same time chancellor of the university. He was charged with a minute personal examination of the theological and law students, but over other degrees he had only that general supervision possessed at other universities. One might easily believe that the Roman law was purposely excluded, but this was not the case, there being no provision for that department simply because it was foreign to the direct aim of the foundation, though not at variance with it. Hence the original act of foundation included all sciences without exception, and the edict of 1245 clearly proves this. Such a university has always existed at Toulouse, and there is no trace of any later organization of it.

Valence.

The time and manner of the origin of the faculty of VALENCE is unknown. However, it had a free constitution of the scholars, which maintained itself up to very recent times. For Cujacius delivered two addresses in 1572 and 1573, on the installation of new rectors, and both rectors must have been students, for at the second installation it was stated that in the election the former customary consultation with the professors had been omitted, from which one may infer that great liberty was possessed by the students.

Bourges.

The BOURGES university was founded in 1464. It had five faculties and the dean of the cathedral acted as chancellor of the university. The bailiff's lieutenant, as royal conservator, held jurisdiction. The rectorate changed every three months, and probably there was also a free constitution of the students.

Lyons.

Distinct traces show that law-schools existed in the 13th century which afterwards disappeared altogether. Thus in 1290 a dispute arose between the archbishop and chapter of Lyons, as to who was authorized to license canonists and civilists, which presupposes the existence of a law-school. Likewise a German poet speaks of a number of legists in Vienne, which also points to a prosperous school of jurisprudence.

III. UNIVERSITIES IN SPAIN, PORTUGAL, AND ENGLAND.

SALAMANCA.

SALAMANCA was founded in the 13th century, and received its statutes in the year 1422, out of which was developed the following constitution. The rector, with eight *consiliarii*, all students, who could appoint their successors, administered the university. The doctors render the oath of obedience to the rector. The "*domscholaster*" is the proper judge of the school; but he swears obedience to the rector. A bachelor of law must have studied six years, and after five years more he could become licentiate. In filling a paid teachership, the doctor was chosen next in age of those holding the diploma, unless a great majority of the scholars objected, in which case the rector and council decided. This liberal constitution for the scholars is in harmony with the code of Alphonso X, soon after 1250, in which the liberty of instruction was made a general principle of law. This constitution continued in Salamanca into the 17th century, for Retes speaks of a disputation which the rector held at that time under his presidency.

ALCALA.

ALCALA UNIVERSITY was established by cardinal Ximenes, in 1510, for the promotion of the study of theology and philosophy, for which reason it contained a faculty of canon, but not of civil law. The center of the university was the college of St. Ildefonso, consisting of thirty-three prebendaries, who could be teachers or scholars, since for admission were required only poverty, the age of twenty, and the completion of the course of the preparatory colleges. These thirty-three members elected annually a rector and three counselors, who controlled the entire university. Salaried teachers were elected, not by the rector and council alone, but by all the students. It had wide reputation. When visited by Francis I, while a prisoner of Spain, he was welcomed by 11,000 students.

COIMBRA.

The COIMBRA UNIVERSITY, in Portugal, received statutes in 1309, from king Dionysius, with a constitution similar to those just mentioned.

OXFORD AND CAMBRIDGE.

The foundation of the two great ENGLISH UNIVERSITIES is uncertain; that of Oxford being about 1130, and that of Cambridge about 1257. Their constitution was formed after that of Paris, and concentrated all the power in the teachers, placing the students under strict subordination. However, these universities managed to secure a greater independence of the royal power than the school of Paris ever possessed.

* According to Prof. de Viriville, the earliest Christian University in Spain was instituted in 1200, by Alfonso VIII, king of Leon, at Palencia, from which it was transferred in 1229 by his grandson, Ferdinand, to Salamanca. Prior to this date, schools of the highest learning existed in Cordova, under the government of the Moors, to which Christian princes sent their sons. Salamanca had at one time twenty-four colleges, and in no country did the rector receive more public respect.

† In the original constitution of the Universities of Scotland, viz., of St. Andrew, by Papal Bull in 1413 by Benedict III, and the second erection of St. Mary's College in 1553; of King's College, (Aberdeen.) in 1494, by the bull of Alexander VI; of Glasgow, ratified by Pope Nicholas V in 1451; the faculties of canon and civil law are expressly enumerated with those of theology and arts. In the original charter of Edinburgh, granted by King James VI. in 1582, law is not included, although law was taught at Edinburgh as early as 1502.

Remarks on the Universities.

Some general remarks on the nature of the superior schools of the Middle Ages and their titles will be offered in conclusion.

The Name.

The name *universitas* does not designate the school as such, but, in a true Roman sense, the corporation formed on founding the school. Who composed this corporation, who ruled over it and held office, depended on the particular constitution of each school. Hence in Bologna the name of *universitas scholarum* was in common use; while in Paris it was *universitas magistrorum*. Nobody then ever thought of the modern use of the word, having reference to a universality of studies and instruction. Such an idea was impossible at a time when many schools contained a *universitas juristarum*, and by the side of it a *universitas artistarum*.

The school, as such, was named *schola*, and after the 13th century, generally named *studium*. The honorary title of a superior school was *studium generale*. This expression has by many been considered as referring to a system of instruction upon all departments of learning, which again is wrong; first, because such generality was never considered the main object of any of these renowned schools, so that this name (*generale studium*) was sometimes limited to one faculty, or could be taken away from any single faculties without being any less *studium generale*; and again, because this name often designates one faculty. It was rather intended to indicate the general or broad nature of the highest schools, since in the first place they admitted both natives and foreign scholars from all parts of the earth, and secondly conferred a degree of doctor, which was universally acknowledged by all governments and other high-schools. The extent of each of these two depended necessarily upon the school's having, by a sufficient number of famous teachers, obtained the necessary respectability.

As regards the origin of these schools, this is intimately connected with the meaning of the title. Wherever a sufficient number of teachers congregated, who were able to establish their reputation, there the school actually existed, without needing any act of foundation by magistracy, pope, or emperor. With respect to public authorities, their coöperation may be thought to have been necessary in providing means to meet expenses, or in obtaining leave to teach, but they had at first no expenses to defray, since they paid no salaries, and it was not thought necessary to ask special permission, because the school brought honor and advantage to the city.

Authority of the Pope.

It has been often said that the pope, according to the original views of the Middle Ages, had the exclusive right of founding universities. In this, three points should be distinguished: the foundation of the school in general; the establishment of the office of chancellor, and the erection of a faculty of theology. Least of all for the foundation in general could such pontifical power or right be considered to exist. Paris, Bologna, and Padua never obtained any letter of foundation, and in those granted to Montpellier and Orleans, it is expressly stated that they were an acknowledgment for their long existence as schools of high reputation. Now, since the pope never contradicted their legal-

ity, it is evident that he never regarded the grant by himself as necessary to their full and legal existence. That in the course of time many pontifical decrees for the foundation of universities were issued, is accounted for in the following manner. When a new school grew up by the side of old and renowned faculties, it must have been, for a long time, doubtful whether it could actually claim the rank of university, and especially whether the degrees by it conferred would be universally respected. To the teachers of such a school, therefore, nothing could be more desirable than for the pope to declare it a *studium generale*; since such official acknowledgment was recognized in all countries belonging to the Roman Church. The pope, on his part, willingly availed himself of this means of extending his authority into distant countries. It is therefore an error to suppose, as Meinero does, that the pontifical approbation was necessary to establish a legal superior school, and that the foundation of one in Naples, by Frederic II, in 1224, was an infringement of papal rights; especially as the earliest (that of Toulouse) papal decree of foundation for any school bears date, 1223.

Office of Chancellor.

The establishment of the office of chancellor rests on much the same basis. The two Paris chancellors never asked or received the confirmation of the pope, and they did not need it, since the university had grown out of their foundation schools, which, according to the canon law, required a license from the clerical authorities. In Bologna the pope filled this position, not that legal promotion could proceed from him only, for he did not dispute the legality of former promotions, but because he considered the measure necessary to avoid abuses. In Padua the professors elected a chancellor, and the pope limited himself to his confirmation. Likewise in Montpellier there was a chancellor long before it became customary for the pope to give confirmation. In the decrees for the foundation, the pope always appointed the chancellor also; but clearly not with any other intention than for that purpose for which he had been originally requested to found the school, namely, to secure to the degrees conferred by that school a universal acknowledgment.

Faculty of Theology.

It was different, however, with faculties of theology, which, in Bologna and Padua for example, were first established and founded by the pope, while all the rest was independent of such a foundation. But here also the direct interference of the pope resulted from the nature of the matter, and indeed one might readily expect that, however free were the other branches of study, no other theological instruction whatever, but such as was approved by the pope, would be allowed. Nevertheless, not even in theology was the principle fully carried out, since the school of Paris never received any consent; and that of Montpellier existed long before the pope acknowledged its standing.

Authority of the Emperor.

Similar to the papal relation was the relation of the emperor to these schools. If he too granted the privilege of *studium generale*, it followed in the nature of things that the promotions of the faculty were universally honored and acknowledged, so that the confirmation of the emperor had the same effect as that of the pope, but neither of them was absolutely necessary. Another principle was afterwards adopted in the constitution of German universities; but we are now considering only the original conditions and customs outside of Germany.

LAW-LECTURES IN THE EARLY UNIVERSITIES.

THE GLOSSATORS AS TEACHERS.

In giving the history of the universities, attention was paid to the lectures only from their general and formal side. At present we must set forth the far more important relation in which they stood towards law. The inquiry must be directed to two objects; firstly towards the division of the subject among different lecturers, and the relation of single teachers and students thereto; secondly, towards the conduct of the courses by the teachers, and the habits of the students in regard to them. Great difficulties lie in the way of the whole investigation, owing to our imperfect information. Panzirolus' account is completely unreliable, since in it partly opinions prevalent in his time, partly isolated incidents taken from earlier writers, are woven into a whole, no regard being paid to the fact that different regulations prevailed at different times and places.

Very useful in this investigation are those oldest descriptions of the systems adopted, which remain, partly in the shape of monographs written for the purpose, partly in preface to other writings or lectures. I will cite these to serve as a guide to future investigations in my path.

In the first class comes the very small and too general notice of Martinus de Fano. Also the *Modus studendi in utroque jure* of J. Baptista Caccialupus Leverinas, and on the same subject, a book by J. J. Camis, published as early as 1476, and often since then.

In the second class, note especially the introduction to a Summary by Hercolinus, upon the Pandects, and the never-published introduction of Odofredus to his lectures upon the *Digestum vetus*.

In these books, *littera* denotes the text, *lectura* an oral interpretation; *legere* refers to the mode of interpretation.

The lectures themselves, at Bologna, and undoubtedly in other places, were restricted to the five parts of the *Corpus Juris*, so that, as a rule, five principal lectures were given, among which two might be "ordinary," the three others always "extraordinary." That all these lectures were really delivered can be at once shown in most cases, since lectures of Odofredus upon the three *Digests*, and upon the nine books of the *Codex*, yet remain, and are in print.

Similar lectures upon the *Volumen* as such no longer exist, but their existence can be conjectured from the gloss upon all its parts upon the summary of Johannes to the *Authenticum*, and from the printed lectures of Odofredus upon the three last books of the *Codex*. It becomes certain, however, from the fact that such lectures appear in the statutes of the university at Bologna in yet later times, when such an inconvenient junction of dissimilar subjects into one course would have been dispensed with, instead of being newly adopted. Along with this regular arrangement we find, however, many very early deviations from it. For example, in the 13th century occur separate lectures upon the Institutes, although they were also contained in the *Volumen*, and were by the statutes expressly connected with the common lectures upon the *Volumen*. At first each of these main courses of lectures lasted a complete term, which was one year in duration, while the disparity in the extent of subjects was obviated by beginning earlier and ending later, or by giving more lectures in a week.

In earlier times, a course occupied only one hour a day, and it is doubtful if, even in later times, a different arrangement was made. No teacher, however, limited himself to one subject, but took them up in order, which explains how students were able to connect themselves with single teachers, during their whole period of study. Nor was it unusual for one teacher to deliver several courses at once, during the same season. Complete information in regard to later changes in this arrangement is wanting. I will bring together here what I have ascertained upon the subject.

At Bologna the statutes contain the following provisions: Each of the three Digests and the *Codex* were read by two doctors at the same time. One read the first half, the other the second, and each occupied with his part that whole year's course, which had been originally assigned to the whole for one lecturer. Whence it follows that the time for the lectures was doubled, and, notwithstanding, in this system arrangements were made so that every scholar could hear the whole *Digestum vetus* in a year. The *Volumen* was, as in former days, to be explained by one person alone, and if possible, entirely. If any part of it remained, the teacher was to go over this part at the beginning of the next course. Similar provisions were made for the sources of the canon law. However, this whole arrangement can not have an earlier date than the second half of the fourteenth century, since it was necessary that salaried teachers should be provided for these places; the majority of salaries, however, begin to be paid at this time. Besides, it is evident that the exclusive relationship of students to a particular teacher was already completely abandoned.

The teacherships appointed for the students have no connection with this investigation, since they evidently were intended more for the profit and drilling of these students than as a material addition to the corps of instructors. A similar arrangement, for similar purposes, was entered into at Montpellier by the statutes of 1339. Here also was each Digest, and also the *Codex*, to be intrusted to two teachers at once in the same year. Here, however, it was not considered sufficient, as at Bologna, to simply divide each original work into a first and second volume, but a somewhat more elaborate mode of division was adopted, and the *Codex* was so divided into the *Ordinarium* and *Extraordinarium* that each of the two had particular books and even parts of books assigned to him. This elaborate arrangement, prevailing at Montpellier, appears to have been then adopted by other schools.

In regard to the arrangements at Padua in the second half of the 15th century, Caius gives the following information.

The complete course of instruction in Roman law lasted four years; one year for the *Institutes*, two years for the *Digestum vetus* and *Infortiatum*, two years for the *Codex* and *Digestum Novum*. The *Digestum vetus* was, for the whole two years, read in the morning, the *Infortiatum* in the afternoon, and the same regulation was observed for the *Codex* and the *Digestum Novum*. But the *Volumen* was no longer in use. In the statutes of Padua, and yet more in detail in the *Fasti* of Facciolati, are mentioned a great number of nominal professors, and it is not clear what lectures were really delivered and were considered as essential parts of a complete course of instruction in Roman law. Among others, appears a particular professorship for the *Authenticum*, one for *Tres Libri Codicis*, one for the book of feudal law. In the year 1544, besides the courses already existing, were also instituted especial courses upon Text,

Gloss, and Bartolus, for which five professorships were established, two in the morning, two in the evening, and one *Tertia*. The most important professorship, however, was that established in the year 1422, for the *Codex Gregorianus, Hermogenianus et Theodosianus*, which position is said to have never been filled after 1687. So much zeal for studies upon legal history is nowhere again encountered, even in later times, and is all the more remarkable as happening at that period. It is, however, not improbable that the whole story rests upon an erroneous basis.

It is instructive to see to what fatal excesses this extension of material led at last. Alciat complains that, in his day, only a few passages were explained every year, so that the greatest part of the study upon the sources was left to private diligence. In yet stronger terms does Panzirolus describe the abuses of his time; the lecturers had continually departed more and more from the text, and busied themselves with the glosses, and the trouble had gone so far that in the principal lectures only five parts of the *Corpus Juris* were treated of in the entire year, and even these no longer, since very important parts of the law were considered only as subjects for extraordinary lectures.

In Pisa, as early as the beginning of the 16th century, a curriculum was by law established, which was certainly based upon previous practice. By this, only a few titles from each part of the Digests were to be explained in a year. It is almost incredible that at Pisa and Sienna the same arrangement prevails to-day.

As to the particular courses attended by particular students, our information is, as might be expected, even more imperfect. As essential, were regarded only the lectures upon the regular books. Doubtless these books were studied by all without exception, the other books by many who made arbitrary selection among them; only those who were particularly earnest and zealous, hearing all. Petrarch, for instance, heard the whole *Corpus Juris*.

Connected with this is the time which a student was to devote to these studies. Rules were laid down only for such students as desired degrees, or at least wished to give lectures, and it was natural that for these cases a longer time than the usual period of study should be demanded.

At the time of Odofredus, the course appears to have been longer than five years. However, the statutes of Verona, in a manuscript of 1228, demand only three years of law study from those who were to become the magistrates of that city. Petrarch studied seven. In the 15th century, the full course of Roman law at Padua was already limited to four years. A regular succession in the lectures heard does not appear to have been thought necessary; they were rather so arranged as to be at once useful to beginners and advanced students. One cause of this was the constant connection between a student, during his whole course of study, and a single teacher, making it necessary for the latter to adapt his lectures to all classes of hearers.

As to the age at which the students commenced their studies, it can only be said that, in general, a riper age than in our times was expected, from which circumstance alone the then existing constitution of the universities is to be explained. This riper age was, moreover, demanded in the case of foreigners by the long and often dangerous journeys necessary to reach the universities; but the case may have been otherwise with natives. But even among the for-

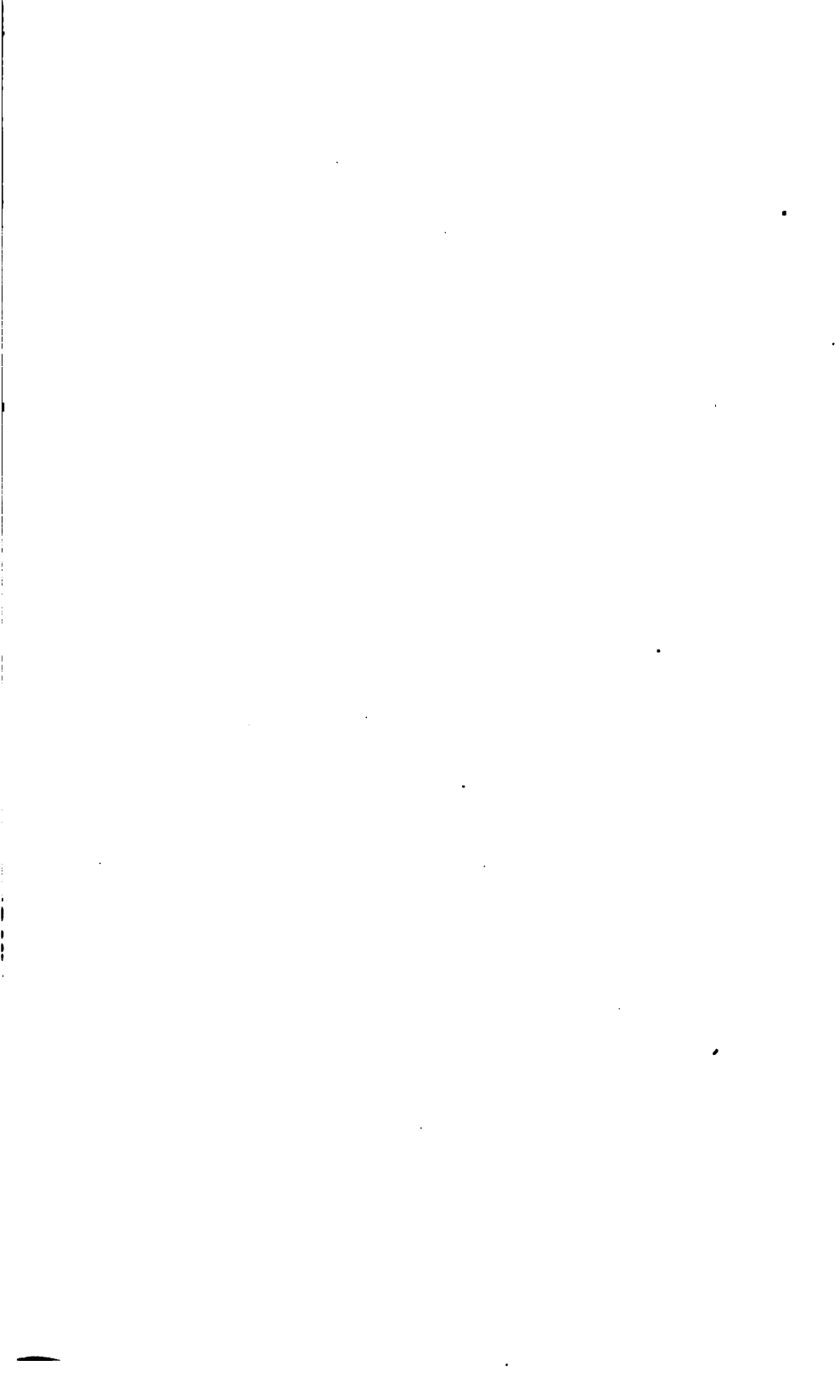
eigners were, at an early period, some remarkable exceptions. Petrarch began at his fifteenth year, and in a strange city.

As a rule, the student limited himself to the lectures upon Roman law, or added lectures upon canon law only; to connect other studies with these was, at first, very unusual. Only the lectures upon the art of a notary may, exceptionally, have been attended by jurists also. The notaries formed, in all important cities, their own guilds, choosing their own officers, and being especially careful that new members should be qualified. Such a guild of notaries may have already existed at Bologna at a very early period. But here it happened, through imitation of the famous law-school in the same place, that they also took the form of such a school, had their own lectures, and gave the degree of doctor. As now their business stood in close connection with the jurists proper, their school may very readily have been looked upon as a part of the law-school; they even read the Institutes often, and it is probable that in the same manner, many jurists attended their lectures, which may have been regarded as a practical branch.

Let us now inquire into the mode of conducting a single lecture. The teacher was accustomed to give, at first, a summary of the whole chapter; in each passage he first read the text, according to his opinion of the correct form of it; to a complete exposition of the text belonged first its *casus*; then the explanation of apparent contradictions in other places; the general law principles therein involved; finally, real or fictitious cases to which it applied, which last, if they were to occupy too much time, were referred to the "repetitions." This was the general plan, which, however, was not strictly carried out in individual cases, as the printed lectures of Azo and Odofredus show, but was modified according to the demands of each particular case. Odofredus boasts of himself that he explained the whole, without omission, and the glosses, as well as the text. As to the delivery of the lectures, general rules can be given for those times no more than for ours. With many lectures, however, it is evident at a glance that they must have been delivered with perfect freedom; *e. g.* the lectures of Odofredus, in which the vivacity and familiarity, and at the same time the carelessness of oral delivery are not to be overlooked. Carefully polished lectures are common enough, but such polish was, as will be readily seen, not given to the whole course, but to the exposition of particular passages.

As to the students' occupation in the lecture-rooms, it appears that taking notes was just as general as at present, of which we have evidence in the frequent printing of the same. In this respect differing from the German customs, the students could interrupt and ask questions during the lectures, but this was not usual, though sometimes practiced in the morning, *i. e.* during the regular lectures. But at the present day, in Italy, a student will sometimes ask the lecturer if he has rightly understood some word.

PUBLIC INSTRUCTION IN FRANCE



V. LIBERTY OF INSTRUCTION AND PRIVATE INSTITUTIONS.

(1.) Primary Schools.—(2.) Secondary Schools.—(3.) Superior Schools.—(4.) Public Lectures.

(1.) THE first article of the decree of March 17, 1808, declares that "public instruction, in the whole Empire, is confided exclusively to the university;" and article second, that "no school, no establishment for instruction, can be formed independent of the imperial university, and without the authority of its chief." These two articles constituted what the enemies of the University of France have called its *monopoly*. They were the open denial of liberty of instruction. This liberty, fifty years ago, nowhere existed in our country, neither for superior, secondary, nor even for primary instruction. Even the Brothers of the Christian Schools had the liberty to teach only as members of the university to which the emperor Napoleon had attached the order.

Under the Restoration, a certain number of religious communities devoted to popular education, were authorized to found schools, some throughout all France, others within certain limits. About the same time a few establishments of secondary instruction obtained the privilege, then enjoyed by some others, of not sending their pupils to the state colleges, and yet of giving certificates of study in rhetoric and philosophy, valid for admission to the examinations for the bachelor's degree. But these privileged establishments were few in number, and, moreover, privilege is not liberty.

The principle of liberty of instruction was laid down, for the first time in France since the founding of the university, in the charter of 1830, and applied for the first time in the law of June 28, 1833. Article three of this law declares expressly that "primary instruction is private or public." It is completed by article four, declaring that "every individual of eighteen years of age shall be able to follow the profession of primary instructor, without any other condition than presenting to the mayor of the commune in which he desires to establish a school, a diploma of ability and a certificate proving that he is worthy by his morality, to exercise the office."

Mere liberty of instruction does not lead to the establishment of new private schools, without some real or supposed advantages connected with them, especially if the public schools are both good and cheap. In 1837, there were 18,023 private schools, and 18,557 in 1840; but they were reduced to 17,118 in 1843; to 16,736 in 1850; and 16,349 in 1865. Thus the number of these schools has gradually diminished, while the number of public communal schools, which was only 34,756 in 1837, was in 1843 found to be 42,720, and had increased in 1865 to 53,350.

But it is worthy of remark, that the decrease in the number of private schools was confined exclusively to the secular schools. Out of 16,736 private schools existing in 1850, there were 12,888, viz: 4,563 schools for boys, and 8,325 for girls, which were directed by laymen; there were but 3,848, viz: 399 for boys, and 3,449 for girls, which had been founded by religious associations.

In 1865 the proportion was entirely changed. Out of 16,349 private schools we find 9,847 secular schools; a decrease compared with 1850, of 3,041. But we find 6,502 schools directed by religious communities, that is to say, 2,654 more than seventeen years ago. The secular schools for boys, numbering 2,864, have 137,721 pupils; and those for girls, numbering 6,983, have 285,909; total, 423,630.

The schools directed by religious communities are divided as follows: schools for boys, 646; for girls, 5,856. The boys' schools contain 1,973 pupils, of whom 56,488 pay no fee. The schools for girls have 443,775 pupils, of whom 156,738 are free. In the former the *personnel* of instruction includes no less than 2,314 masters and under-masters, and in the latter, 19,000 female teachers and under-teachers. Besides these schools belonging to the religious associations, their teachers direct 13,391 public communal schools, viz: 1,970 boys' schools, 8,322 girls' schools, and 1,099 schools common to the two sexes.

(2.) In the mean time the clergy and numerous catholic families demanded that the same liberty of instruction should be extended to secondary institutions as guaranteed by the charter of 1830. After long and stormy discussion in the legislature, and in the press, and various unsuccessful attempts by the government to reconcile the conflicting claims of the friends of the university on one side, and of unrestricted liberty on the other, came the revolution of 1848, with its constitutional enactment. *Instruction is free.* Before a declaration so clear and precise, there was at once an acquiescence on the part of the differing advocates of restricted liberty, in the provisions of the law of March 17, 1850. By the terms of that law every Frenchman aged twenty-one may exercise the function of primary instructor, throughout France, if he is furnished with a diploma of ability; and every Frenchman aged twenty-five may establish an institution for secondary instruction, if he holds a diploma of bachelor, or a certificate from the proper authority that he has for at least five years exercised the functions of inspector or instructor in a secondary school.

For primary instruction, in place of a diploma of ability may be substituted the evidence of three years' experience in the primary school, or of being a minister of religion, or the diploma of bachelor, or, finally, of the simple admission of the candidate into one of the special schools of the government, such as the Saint-Cyr, the polytechnic, or the forestry school. Letters of obedience take the place of diplomas for female teachers belonging to religious communities devoted to instruction and recognized by the state.

For secondary instruction, the applicant may present, in place of the diploma of bachelor, a certificate of having passed successfully an examination similar to that for the baccalaureate, before a special jury, and not before a faculty. For the rest, the legislature declares those individuals incapable of having a school who have been condemned for crime or for an offense against honesty and good morals. But the law of 1850 does not maintain the incapacities which the former regulations, and especially

article two of the ordinance of June 16, 1828, pronounced against the ecclesiastics engaged within the limits of a religious community.

Such are the immunities, new in France, which the law of March 15, 1850, sanctioned. To prevent their abuse, the legislature has decided that the public authority, through the organ of the rector, the prefect or the imperial attorney, might, in the interest of the health of pupils and of good morals, make opposition to the opening of every new school. The justice of this opposition is decided by the departmental council, with liberty of appeal to the higher council of public instruction. Before the same judges must appear all private teachers who are accused of negligence in the exercise of their duties, of misconduct, or immorality; they are, according to the circumstances, censured, suspended, or even receive an absolute prohibition, incapacitating them from holding any office of instruction. The spirit in which the law was to be administered is expressed in the Circular addressed by the minister of public instruction (M. de Parieu) to the new rectors:

"I will place in the first rank of your obligations, sincere respect for that liberty which is, so to speak, the principle of the new law. Conceived and adopted with the avowed intention of freeing private instruction from the tutelage of the state, this law continues no one of the obstacles that the old legislation had established. It consecrates at once the liberty of the father of the family, and that of the citizen, who can henceforward, without previous authority, devote himself to the education of youth. It admits no opposition on your part to the opening of private schools, except in the interest of the public morals, the health of the pupils, or for lack of ability, as determined by law. In applying a legislation so liberal, in a manner conformable to the spirit that dictated it, your administration will not be tolerant merely, it will show itself when necessary, benevolent and protective. Everywhere that you see youth educated in the principles of order, morality and virtue, you will know that there is an institution useful to the country, and whose prosperity should be dear to you."

The statistical results of making instruction free to parents and teachers—and to teachers, individual or associated, are as follows: on the first of January, 1865, there were 934 private establishments (147 less than in 1854) of secondary instruction, with 34,000 pupils, besides 264 clerical seminaries* with 20,000 pupils, an aggregate of 1,198 schools and 54,000 pupils. In the mean time the attendance in the state lyceums has increased from 19,265 in 1850, to 34,442 in 1865; and in the communal colleges, from 29,000 in 1850, to 32,000 in 1865. Liberty of instruction, properly guarded, while it has quieted opposition and satisfied the demands of families, has periled no interest, but helped the diffusion of knowledge and the elevation of public intelligence.

(3.) Superior instruction, differing from primary and secondary instruction, has continued entirely subordinate in its exercise, to the discretionary power of the administration. To-day, no more than in 1808, no one may teach law, medicine, archeology, belles-lettres, in France, if he has not

* Of the clerical seminaries, 13 belong to the Marists; 11 to the Jesuits; 1 to the Lazarists; 2 to the Basiliens; 2 to the Picpuiciens; 1 to the Doctrinaires; 1 to the priests of the Perpetual Adoration; 1 to the priests of the Sacred Heart of Mary and Jesus; and 1 to the priests of Saint Joseph.

obtained for this purpose, from the government, represented by the minister of public instruction, an express authority, which is always revocable.

There has, however, always been in France, outside of the official instruction, a certain number of public lectures on different branches of science and literature. The most ancient, the most numerous, and without doubt the best organized, were the lectures given at Paris to the students in medicine, and which completed in the happiest manner the instruction of that faculty. Directed in general by masters still young, but skillful and full of ardor, these latter courses shared the great renown which the medical school of Paris has acquired throughout the entire world.

(4.) Under the auspices of the minister of public instruction (M. Duruy), and by the exertions of an association of professors, scholars, and men of letters, scientific and literary conferences (familiar lectures) were organized at the Sorbonne, at the close of the year 1863. Twice a week, for several months, there was gathered a compact audience of old and young, fathers and mothers, simple workmen and people of the highest rank, pressing into the venerable edifice consecrated from all time to the severe studies, to listen to an address, witty or learned, and always instructive.

Encouraged by the success of these courses at Paris, the minister, in a circular dated October 1, 1864, invited the members of the university faculties to prepare for the large centres of population throughout the Empire, the most noble and the most useful recreation, by giving, in imitation of the discourses at the Sorbonne, a few public instructions on subjects of science or literature, capable of being intelligently treated in a single hour; at the same time the coöperation of the learned societies, the magistracy, the administrative bodies, all those, in fact, who, in different positions, could unite usefully in this crusade of devotion and knowledge, against ignorance and dangerous leisure, was invoked.

At the commencement of the legislative session of 1865, the government announced in the *Exposé de la situation de l'Empire*, that 300 free courses of lectures were in progress; which number continued to increase during the following months. During the scholastic year 1865-1866, there were no less than 1,003 assemblies, of which 304 were at Paris, and 699 in the departments. Among these, 124 were given under the auspices of learned academies, 25 of industrial societies, 152 of municipalities, and one of a chamber of commerce. All the enlightened classes furnished their contingent to the *personnel* that bore the burden of this instruction, so novel in France, but so quickly and so universally popular. It counted in its ranks 355 professors, members of the university, 144 men of letters, 2 councilors of state, 12 members of the institute, magistrates, engineers, lawyers, druggists, architects, members of the clergy. The subjects treated present a happy variety. Literature furnished 394 subjects; the sciences and their application, 223; history, 103; political economy and jurisprudence, 87; the fine arts, 48; hygiene, 40; geography, 36; philosophy, 33; agriculture, 24; archeology, 15.

PROPOSED REORGANIZATION OF SUPERIOR INSTRUCTION.

ART. 1. Superior public instruction is given:—(1.) In the faculties maintained by the State; and (2) in the public schools of superior education maintained by communes or departments.

2. There are four orders of faculties, namely—Letters; mathematical, physical, and natural sciences; law, and the economic and administrative sciences; medicine and pharmacy.

3. The faculties confer, after public examination, the degrees of "bachelor," "licentiate," and "doctor." Juries appointed by the minister, and composed of professors of all the faculties, grant, as at present, what are called "special" degrees of "bachelor" and "licentiate."

4. These degrees are granted alike to all students, whether inscribed in the faculties or not.

5. The degree of "bachelor" is required of all who desire to be employed in classical education, or in the special teaching of the lycées and colleges; the degree of "licentiate" is necessary for the humanity classes and the superior courses of special education in the lycées; and that of "doctor" for appointment in the faculties and public schools of superior education. The grade of "licentiate in law" is required for admission to the magistracy; and that of medicine or pharmacy for medical employment under the State.

8. The faculties are composed of titular professors, and *agrégés* or substitutes.

9. Professors must be natives of France, full thirty years of age, and of the degree of "doctors," and are nominated by the Emperor from a list of three candidates elected, by ballot, by the professors.

10. No professor can be removed from his chair except by the decision of a commission of five members of the Imperial Council, and on the advice of the Committee of General Inspectors of the faculty.

12. The *agrégés*, or fellows, are elected, after competitive examination; and the judges, two-thirds of whom must belong to the faculty in which the vacancy occurs, are elected by their colleagues; the remaining third to be elected by the Academies of Inscription and of Sciences, the Court of Cassation, and the Council of State, according to the faculty.

13. The candidates for the title of *agrégé* must be natives of France, not less than twenty-five years of age, and doctors.

15. Every professor, or *agrégé*, is at liberty to open a course of lectures within the faculty, and to receive the fees.

16. The Minister of Public Instruction may authorize other doctors also to establish such courses.

18. Inscription of students on the list of the faculties is maintained, but the State abandons all fees, which are divided into two parts, by a vote of the Imperial Council; one of these parts goes to the professors, in proportion to the number of pupils inscribed for their course, and the other to the funds of the university, for the creation of scholarships, &c.

19. The dean of each faculty is elected from amongst the professors, by the votes of themselves and the fellows, and for the term of three years only.

20. A general council, elected for three years, consists of the deans and one professor from each faculty; it has the administration of the funds and all matters relating to the superior academic establishments in general.

Chapter II deals with the faculties of economic and administrative sciences:

22. Faculties of economic and administrative science are founded within the faculties of law of Paris and Toulouse.

23. The instruction comprises the Code Napoleon, criminal law, and civil procedure, studied with regard to the economic interests of society and individuals; public law, the law of nations, commercial, industrial, and rural law, administrative law and judicial organization, political economy, and the history of economic facts and doctrines.

24. Candidates for admission must have obtained the diploma of bachelor of letters or sciences; and students in law are also free to this faculty.

Chapter III deals particularly with the faculties of medicine and pharmacy.

25. The medical education is theoretical and practical.

It comprises, for the preparation for the grade of licentiate or doctor, normal and pathological anatomy, physiology, internal pathology and therapeutics, external pathology and operations, obstetrics, clinical medicine and surgery, pharmacology, medical applications of chemistry, physics, and natural history.

26. For the degree of doctor of medical sciences is added—Special pathologies, the public hygiene, forensic medicine, and medical history.

The students study dissection, manipulations, and analyses, under the professors or *agrégés*.

27. The pharmaceutical education comprehends physics, chemistry, botany, zoology, pharmacy, toxicology, the natural history of drugs; with manipulations, practical lessons, and herborizations, under the direction of the professors.

28. The degrees are of two grades:—

(1.) Licentiate in medicine and in pharmacy, or doctor and pharmacien.

(2.) Doctor in medical and pharmaceutical sciences.

29. Candidates for the degree of licentiate must have previously obtained the degree of bachelor of letters or of science, and have to undergo—

(1.) A first examination in the physical, chemical, and natural sciences applied to medicine.

(2.) Three other examinations on the subjects named in Art. 25, to be hereafter determined by the Imperial Council, and, finally, a clinical examination.

(3.) Hospital or pharmaceutical studies for the period of three years, dating from the first examination, and consisting of assiduous and registered attendance in a hospital, or in a laboratory under a licentiate.

30. Candidates for the degree of doctor in medical sciences must have previously obtained the degrees both of bachelor in letters and sciences, or of the degree of special bachelor, named above; the degree of bachelor in letters is not required of those who seek the degree of doctor in pharmaceutical science. The candidates undergo three examinations on the subjects named in Articles 25 and 26, and write a thesis.

31. If the pupils, after seven years' study, have not obtained the degree of licentiate or doctor, their names are struck off the lists of the faculty; an exception is, however, made in the case of *internés*, dressers in the hospitals, pupils in lunatic asylums, and anatomical preparators and assistants.

32. Candidates for the degree of licentiate or doctor, who engage before the rector to exercise their art in any of the districts of medical assistance, where there is no practitioner, are relieved from all fees of inscription, examination, and diploma, and they may, moreover, obtain through the Minister of Public Instruction an annual allowance during the time of their studies.

33. Before entering on the practice of their profession, all who have obtained their degree must register their diplomas, either at the Academy or at the civil tribunal of their district.

34. The medical and pharmaceutical are not incompatible with each other.

Chapter IV deals with the public schools of superior education.

35. The public schools which now exist, or may hereafter be founded by communes or departments for special superior education, law, economic science, medicine, and pharmacy, prepare pupils for the grade of licentiate, whether educated in private or public schools.

36. The professors and assistant professors in the public schools of medicine and pharmacy are named in the same manner, and on the same conditions as those of the faculties, with the single difference that the jury for the competitive examination of assistant professors is formed, two-thirds of professors of the said schools, and one-third of licentiates and doctors attached to the schools.

As regards schools of law or economic science, which any towns may desire to establish, the Minister will make the nominations, so long as there are no more than three such schools, after which the existing system of presentation will come into operation. The regulations respecting professors in the faculties, given above, apply also to the public schools of superior instruction.

38. These schools deliver the diploma of licentiate, but the recipient must pass the final examination in one of the faculties. In the case of a medical degree the examination is clinical.

A commission of the Imperial Council will be charged with the revision of the statutes and regulations of the University.

PUBLIC HIGH SCHOOL IN A GRADED SYSTEM.

CONTRIBUTIONS TO THE HISTORY OF THE PUBLIC HIGH SCHOOL OF HARTFORD,
IN A LETTER TO THE PRINCIPAL.

HENRY BARNARD, LL. D., TO PROF. S. M. CAPRON.

DEAR SIR: In complying with your request to jot down briefly the substance of our talks on efforts put forth here in Hartford and in Connecticut generally, prior to the final action of the First School Society of Hartford in 1846-7 to establish a Public High School, to revive the old requirements of the Statutes, by which such a school (called originally a grammar school for the town, or county), was made possible, I shall note such only as I was personally conversant with, viz: Efforts (1,) to change the law, by which such School Societies as Hartford, or the Districts into which the compact portions of all the cities and villages of the State were unfortunately divided, could be authorized to establish schools of different grades (including the highest), and maintain the same by tax like any other public interest; and (2,) to induce the wealthy and educated to give up their reliance on academies and select schools and unite in establishing on the firm basis of public law and with a proper equipment of school-house, apparatus, and teachers, a local school which while it met their wants better than any existing institution, should also be open to worthy and talented children of their poorer and less fortunate fellow-citizens. I will try to be brief, but as this chapter in our school history seems not to be fresh in the memory of the present generation, it will be necessary to go into details, to show that a good deal of work was done, and done too with some thoroughness, before the policy of a Public High School supported by tax could be put back on the statute book, and into the hearts and habits of this people.

The English and Classical High School of Hartford, as established in 1847 by the First School Society (now coterminous with the Town), and especially when viewed in its present connection with the Trustees of the old Town Grammar School, may be regarded, legally and historically, as the School taught by Mr. Higginson in 1637, Mr. Collins in 1641, and Mr. Andrews in 1643, and partially endowed by the Town in 1642; the Grammar School made imperative on Hartford as a town of one hundred families by the act of 1650, "the masters thereof being able to instruct youths, so far as they may be fitted for the University" then in operation in Cambridge; the Latin School, "for the maintenance" of which William Gibbins (steward of the Wylls family) who died in 1655, devised by will about thirty acres of meadow and upland in Pennywise, in the town of Wethersfield (part of the tract on the Cove on which E. G. Howe in 1863 erected a residence); the County Grammar School, in aid of which the General Court appropriated in 1672 six hundred acres of land "to be improved in the best manner that may be for the benefit of a Grammar School in said county, and for no other use or end whatever"; and one of the two Free Schools

ordered in 1690—"the one at Hartford, and the other at New Haven, the masters whereof shall be chosen by the magistrates and ministers of the county, for the schooling of all such children as shall come to be taught (among other things) the Latin and English languages," and towards the salary of such masters the school revenue from bequests (of Edward Hopkins and others), were appropriated.

The Town Grammar School and County Free School, thus supported in part by taxation and in part by endowment, was made imperative on Hartford, and was maintained with varying efficiency till 1798, when its funds and management were transferred to Trustees, "to maintain according to the original intent of the donor for the education of youth in the rudiments of the higher branches of science not taught in common schools, of the Latin, Greek and other useful languages; of the grammar of the English tongue; of geography, navigation, book-keeping, surveying and other similar studies, preparatory to an education at the University, or a life of active employment." Although the school, under its new management, was never brought up to the standard set forth in its charter, the immediate results were favorable,—the funds were better administered, the income was increased, and a succession of able teachers (generally graduates of excellent scholarship from Yale College) were secured. But having no organic connection with other public schools, it exerted no influence except to depress them by withdrawing the children of the educated and wealthy families, who were able to send their sons to college. Having no responsibility to the town, neither trustees or teachers made reports, or did any thing to awaken public interest in the School. With a fixed and very limited curriculum, which was to prepare young men for college, and with only one teacher, the education given was very one-sided, and was always deficient in science and English studies. There were times, when both teachers and trustees needed the rousing shake of a town meeting, and the School needed to be lifted up to a new and higher plane of action by the aid of larger appropriations and public sympathy.

A change in the school policy of the State, commenced at an earlier period, but consummated in 1795, by which ecclesiastical societies under the designation of School Societies, were clothed with the powers and duties before attached exclusively to towns; the multiplication and special incorporation of School Districts; the practical abandonment of the principle of gradation in the revision of the school law in 1799, by which the maintenance of a Grammar School in certain towns was no longer made imperative, but the establishment of a common school of a higher order was left with each School Society to establish by a vote of two-thirds of the inhabitants present at a legal meeting warned for that purpose—this radical change, coupled with other changes quite as fundamental in the school habits of the people in which the strength of a popular school system like that of New England and Scotland resides; the gradual abandonment of property taxation, which ceased to be compulsory in 1822 by the silent operation of a provision of law introduced in 1820; the growing and fatal reliance of parents on the dividends of the School Fund, for the support of their district school; and the mere perfunctory inspection of schools, and examination of teachers with a view of not losing by open neglect the distributive share of the dividends,—these and other causes, operating all over the State, reduced the common schools to the condition in which they were found

by intelligent observers among ourselves, such as Denison Olmsted, Thomas H. Gallaudet, Roger Minot Sherman, James L. Kingsley, Thomas Robbins, Hawley Olmsted, Samuel J. May, William A. Alcott, William C. Woodbridge and others, from 1825 to 1830. About that time originated the great "School Revival" of New England, for the causes which operated here had produced similar deterioration in common schools in other States, or at least had arrested that development which was necessary to meet the demands of a wider and better education for all classes of society. Of this revival in Connecticut I have given a brief history elsewhere, including the Hartford School Improvement Society, which held its first meetings in the winter of 1826-27; the Oration of Prof. Olmsted, and the Letters of T. H. Gallaudet, proposing a Teachers' Seminary, and the plan of W. C. Woodbridge and William A. Alcott to establish one in this city in 1828, which if carried out would have been the first on this continent; the movements of Hawley Olmsted in the House of Representatives in 1826 and '27; the great State Convention held in this city in 1830, and other meetings and publications.

The immediate fruits of this revival of educational interest in Hartford, was a renovation, after a poor fashion, of all our school-houses, the addition of an English department to the Grammar School, and a reorganization of the studies, and classification of the pupils in the Center and South District Schools. But the efforts put forth did not reach the seat of the difficulty—they did not destroy the independent existence of the Districts; they did not restore the old system of town taxation or induce the School Society to exercise that right which undoubtedly belonged to it; they did not bring all the schools into a well adjusted system, so that the lower should furnish a regular supply of pupils for the higher, and the highest operate with a healthy stimulus on the teachers and pupils of all the schools below; they did not provide a system of inspection and reports by which the people were kept annually advised of what was doing in this most vital and productive of all their interests, the right education of all the children of the city. Not securing these objects, not only was the work begun not finished, but a reaction took place, or at least further progress was hardly perceptible, and in the Grammar School, after a brief period of prosperity, the scheme of 1828 broke down, so far at least that in 1838, and for many years before, the sons, not only of wealthy families, but of many who could ill afford the expense, were sent out of town, and out of the State, to obtain a good English education.

In 1837 my public connection with school agitation began in the House of Representatives, in the advocacy of a bill introduced by Judge Sharpe of Abington, to provide for the more thorough local visitation of schools, and of a resolution to secure for the first time through the Comptroller official information respecting the common schools of the State. In remarks on the latter measure, I ventured the opinion, "that our district schools had sunk into a deplorable condition of inefficiency, and no longer deserved the name of common in its best sense; that there was not one educated family in a hundred that relied on the district school for the instruction of their children; and if they did go, the instruction received was of the most elementary character. All the higher education of the State was given in denominational academies and irresponsible private schools of every grade of demerit. I may be wrong, although I speak as a victim of a miserable district school in the chief city of

the State. Let us have light, and then our successors here can act with knowledge and thoroughness."

In 1838, as soon as I was returned a member of the House, I addressed myself to the best preparation I could make for the thorough discussion of this subject.* I hurried up the preparation of the society school returns, which I found in the Comptroller's office, unarranged and uncollated; a circular was addressed to every member elect for information on certain points specified, and three weeks were devoted to personal visits, public and private, to schools, and conferences with school men, in different parts of the State. Soon after the House was organized, a select committee was raised to consider the subject, of which I was made chairman, and as my circular had arrested the attention of members, there was much talk and looking forward to legislative action. I soon found that with nearly every member, the next election was the day of judgment, and that any measure, calculated to disturb the relations of political parties by giving to the minority the slightest chance for crying increased taxation, or suggested a suspicion of diminishing the dividends of the School Fund, had not the slightest chance of success. It was therefore not deemed advisable to broach any radical change in the system, but simply provide the machinery for a wide-spread agitation of the subject, and inaugurate a system

*The subject in its largest scope was not new to me. Circumstances had made me acquainted with the Latin School and the English Classical School of Boston, the Central High School of Worcester, the Gymnasium of Dwight at New Haven, and of Cogswell and Bancroft at Northampton, and I had brought several of these to the attention of the Trustees of the Hartford Grammar School, at the time its reorganization was under consideration in 1828, and 1833; and letters describing them will be found in the old file of the New England Review. As a traveler, "not floating about in a miscellaneous way," but having a specific object in view in every city or country visited, the school had always been an object of interest as an index and measure of the civilization and culture of a people. In this way, without the slightest expectation of ever having any thing to do with school organization and administration, I had studied the best school systems of Europe, and had visited several of the most remarkable institutions of the secondary and technical grade before the close of 1836; and in a volume, for which I made memoranda, and collected material, it was my purpose to discuss in the light of European experience, among other topics:—I. Reformatory and Industrial Schools for neglected and semi-criminal children. II. Secondary Schools—designed to prepare candidates for the highest literary and scientific instruction in Universities and Polytechnic Institutes. III. The Polytechnic Institute or University of Science and Modern Languages, with schools and classes of practical application to agriculture, architecture, commerce, mines, manufacture, locomotion, etc. IV. Schools for the Professional Training of Teachers—elementary and higher. V. School Inspection and Central Administration. Much of the material gathered for these chapters was published in Appendix IV, to my Annual Report for 1839-40, and subsequently embodied with later information in the volumes entitled *National Education in Europe; Reformatory Schools and Education; and Normal Schools and other Agencies for the Professional Training of Teachers*. At a much earlier period, the vital importance of universal education to a government fast approaching to universal suffrage and universal eligibility to office, had been dwelt on in an Oration delivered in the North Congregational Church on the 4th of July, 1834; the importance of Schools and Education, not only to the ultimate success of the Colony of Liberia, but to prevent it from being swallowed up in the barbarism of a Continent, was one of the topics of an Address before the Connecticut Branch of the American Colonization Society, in the Center Church Conference Room, July, 1833; and the weight of universal popular intelligence in the settlement of international differences before War was declared, and in demanding the arbitration of neutral powers before appealing to brute force, was discussed in an Address before the Connecticut Peace Society, in the North Baptist Church, in December, 1834. My first knowledge of the school system of Prussia was gained from Adams' (John Quincy) *Letters from Silesia*, in which he pays a just tribute to the far-reaching school policy of Frederic II.; and *Letters from Germany* by Henry E. Dwight, published in 1828.

of annual reports, by which the people in each society, and the Legislature, should be informed of the condition of the schools and suggestions for their improvement. In the speech, introducing and explaining this measure, the legislation of the State was reviewed, and the gradual departure from the fundamental principles of the old system was pointed out, as well as our failure to meet, by better educated teachers, and a more scientific course of instruction, the exigencies of increased population and wealth, and of diversified industries.

What changes have we made to meet the demand for more thorough preparation for College? where can any special preparation be made for occupations which demand a knowledge of drawing, engineering, and chemistry? I know not a single school in the State in which drawing is taught; and yet without it, every mechanic labors under daily disadvantage, and the whole field of design and all the highest domains of art are closed. But without even alluding to new studies—where are the public schools of a higher grade which the statutes, down to the beginning of this century, made imperative? Where is the "town of 100 householders," or of 1,000 even, which maintains a public Grammar School, "the teacher thereof being able to instruct youth, so far as they may be fitted for the University?" Where is the "County Town" which maintains a "free school for all such children as shall come there to be taught (among other branches) the Latin and English languages, the master thereof to be paid one-half by the county, and the other half out of the school revenue given or to be given for this use, so far as it will go, and the rest by the respective towns?" Where are the six hundred acres of land which were appropriated by the General Court in 1672 to each of the four county towns, "forever to be improved in the best manner that may be for the benefit of a Grammar School in said County, and for no other use or end whatever?" Where is the town or State officer, who knows the condition of the beneficent bequest of Edward Hopkins, by which "hopeful youth were to be bred up at Grammar School and College for the service of the country?" If there is a Free Grammar School, in Hartford or New Haven, which does not require a pretty high fee for admission, I should like to know its location and teacher. And what substitute has the State provided for this abandonment of the whole field of higher education? What security have parents who are not competent themselves to judge, that these chartered academies, and numerous adventure schools, are performing well or at all the work, which our fathers thought to be essential to the commonwealth? I speak from personal knowledge on this subject—there is not a Public Grammar School in the State resting for support on property taxation, and to which a poor but talented lad could enter except as a recipient of charity. We have nothing corresponding to the great Public Schools of England, resting on the endowments of centuries—nothing like the High School of Edinburgh, where in Brougham's day the sons of the noble and the shopkeeper occupied the same bench—nothing like the Real and Burgher Schools of Leipsic, much less the Gymnasiums of Berlin and other German cities, which although not free, are so aided by the state or municipality, or so endowed with scholarships, that the poorest boy, if talented and worthy, can get his preparation for the University, and enter into free competition for government appointment and professional promotion;—nothing like the Latin School of Boston, where a son of the President of the United States was said to have taken the second prize, when the first was awarded to the boy whose father sawed the masters' wood."

Other topics, connected with the past legislation and the existing condition of the common schools,—the irregular and non-attendance of children at school, in connection with the provision of the statute of 1698 which required the selectmen "to see that not a single family should allow so much barbarism in its midst as to have a single child unable to read the holy Word of God, and the good laws of this colony;" the itinerating and non-professional class of teachers; the absence of constant, intelligent, and skilled inspection; the inadequate and defective mode of supporting the system, &c., were discussed, closing

with an appeal to members to at least inaugurate a system of State supervision, by which the people and the Legislature should be advised in an official way of the actual condition and desirable improvements of our school system. On motion of Roger Minot Sherman, the Nestor of the House, the bill was put at once on its final reading, and passed without a dissenting voice. The Act passed the Senate with but one dissenting voice. The originator of the measure, after an effort on his part to secure the acceptance of the position by Thomas H. Gallaudet and Lorin P. Waldo, was made the executive officer of the Board of Commissioners of Common Schools, instituted by this Act.

In the week following the adjournment of the Legislature, as President of the Young Men's Institute, then just established, I was invited to explain its plans of operation, and commend them to the personal coöperation of the young men, and the pecuniary aid of the citizens of Hartford generally. With my mind full of the discussions of the House, and with a plan* to meet the educational and moral wants of cities carefully and thoroughly digested, in which institutions like the Institute, then generally designated Lyceums, had an important place, on the evening of the 4th of July I delivered a lecture in the Center Church, in which, with an enthusiasm which had not yet been chilled by the apathy and opposition of those it desired to benefit, I magnified the work the young men had begun, by making it part of a system of popular education for the city. That lecture, in all its main features, was repeated in the Fourth Congregational Church, and subsequently in New Haven, Norwich, New London, Middletown and Norwalk †—as well as in other cities out of the State. The following outline is from a newspaper report, in which the editor was careful to say: "We would not be understood as advocating every measure proposed by the lecturer, but in general we think our readers will agree with us, that his plans are wise and philanthropic. Nothing in our opinion deserves this praise more than the proposal to put the schools mainly under the supervision of the mothers of the children. An association of mothers in each district, or union of districts, having the choice of the teachers, the examining of the pupils, and all the property and arrangements of the schools, in their hands, would be one of the happiest expedients ever adopted in respect to primary education. They would see that the seats were adapted to the comfort of the children and properly arranged, the rooms suitably warmed and ventilated, the grounds properly laid out and adorned with shrubbery, and all the moral as well as intellectual influences of the schools, of the best character. They would visit the schools, at least by their committees, and exercise a vigilance over them, absolutely indispensable to their prosperity, and which committees of the other sex, unpaid or paid, do not observe."

* This plan had been already embodied in a lecture to be read before the American Lyceum, which met in Hartford in May (9-11) previous, and which I had been prevented from attending except on one evening by my engagements in the Legislature in New Haven. It was in the interest awakened by the discussion of the Lyceum, which held its annual session in Hartford, on the application of Mr. Gallaudet and myself, that the Institute had its origin.

† The Otis Library, and meetings to establish a Public High School, which ultimately were directed to the endowment of the Free Academy, in Norwich; the Union of the City Districts and the establishment of the City High School in Middletown; the Young Men's Institute, and numerous meetings to inaugurate a system of graded schools, in New Haven; the establishment of the Young Men's Association Library, and meetings for the establishment of a Public High School, in New London, and similar meetings in Bridgeport, Norwalk, Stamford and Winsted were among the fruits of this lecture in Connecticut.

Outline of Lecture on the Moral and Educational Wants of Cities.

He first presented a vivid picture of the large city, not only as the mart of commerce and business, the point to which the facilities of trade all tend, the center of political influence, the arbiter of fashion, the arena of the highest literary and professional talent, but as exhibiting the most fearful contrast in the social, moral and intellectual condition of its population—high intelligence and wretched ignorance—overgrown wealth, ministering to the luxurious indulgences and the fashionable frivolities of its possessors, and abject poverty withering up all the noble impulses of its victims, and nurturing the elements of anarchy, vice, and crime, in its bosom. To remedy this false civilization, and to elevate and purify the influences which must go forth from the city to the country, the lecturer proposes the following system of moral and educational means:

First, that provision be made for juvenile offenders who abound in cities, by sending them not to the County or State prisons, or to the town work-house, as at present constituted, but to a House of Reformation, including a School of Industry, where correct moral and industrious habits could be formed. One such would answer for the State, and should be located in the country.

Second, that the physical condition of the poor of our cities be improved, and their physical wants be relieved, by making their houses more convenient and attractive, by furnishing them in every possible case with employment, instead of indiscriminate charity, and through personal intercourse, by awakening in their minds a self-respect and force of thought to bear up and rise above the adverse circumstances of their lot. The home of the poor might be improved wonderfully in a single generation, by disseminating plans of cheap tenements, embracing the conveniences of a home, which the *stopping places* of the poor do not now have, and by inducing men of property and of philanthropy to erect such to rent for a fair return on the money invested. If in the children of the poor a sense of the beautiful, a taste for flowers and music, could be cultivated, it would soon change the outward and inward aspects of this class of homes in our cities.

Third, that more abundant means of innocent and rational amusements, such as are calculated to develop the physical frame, to inspire cheerful thoughts, to promote the social feelings, and to be shared in by rich and poor, the more and the less favored in intellectual improvement, must be provided, encouraged and sustained.

Fourth, that a broad, liberal, and cheap system of educational influences, such as schools, books, libraries, lectures, cabinets, &c., must be spread before and around every child, youth and grown up person in our cities. Such a system might embrace,

1. *Primary Schools* for children under eight years. In this class of schools, the health, manners, morals and early mental habits, should be attended to. The teachers in all cases to be females, and the supervision of the schools to be intrusted mainly to the mothers of the children.

2. *Secondary or Intermediate Schools*, for children between the age of 8 and 12. In these schools the education of the pupils should be carried as far as is now done in the best of our common schools, and thus four years at least in the school period of children be saved. This Mr. Barnard thinks might easily be done, if teachers properly trained were employed, and the foundation was properly laid in the Primary Schools. In these Schools there should be a male and female Principal, as the influences of both are needed at this stage of moral education, and in the formation of the manners of children.

3. *A High School*, with two departments, one for boys and the other for girls. This school should afford a higher elementary education than can be given in the secondary schools, or the common schools as now constituted, and at the same time furnish an education preparatory to the pursuits of commerce, trade, manufactures, and the mechanical arts. All that is now done in our best private schools for the children of the rich and the educated, should be done for the children of the whole community.

Connected with this system of Public Schools, there should be one or more departments for *colored children*; and *Evening Schools*, for such young persons

as are hurried by necessity, the haste of parents, or their own choice, into the counting-room, the store, or the workshop, without a proper elementary education, or for another class who may wish to pursue studies connected with their several trades and pursuits. By means of such schools, the defective education of many of the youth of our cities might be remedied, and their various trades and employments be converted into the most efficient instruments of self-culture.

4. *Libraries of useful and interesting books.* Each school should be furnished with books for the teacher and scholar; and in the selection of books, care should be taken to procure such books as will furnish the teacher with the means of oral instruction in every study of the school, and enable the scholar to carry on his investigations from the point where his class-book and the teacher may leave it. Instead of a library in each school, there might be one for each class of schools, and this be divided into as many cases as there were schools in each class, and then pass in succession through them all. In this way the interest of the readers would be kept fresh, and a much wider selection of books be secured at a reduced expense.

Each school should be furnished with maps, diagrams, globes, and other forms of illustration, so that the knowledge acquired may be vivid, accurate and practical.

This system of schools should be maintained at the public expense, and its administration be intrusted to a Board, elected by the people, with this provision, that one-half of the number shall have been members the year previous, and that a Superintendent be appointed with suitable compensation to devote his whole time to the usefulness of the schools.

Fifth, the Lyceum in its various departments, should take up the education of the community where the schools leave it, and by every help and means of self-culture, carry it forward to the end of life. The Lyceum should embrace, under one general organization, with subordinate sections, each having a single department, or in as many independent organizations, as there are departments—

(1.) *A Library*, embracing the widest range of reading for all classes, except the young, who should be provided for in the school libraries.

(2.) *Classes for debates and composition*—or for the attainment of facility and felicity in the use of the English language, as a spoken and written instrument of thought. The foundation of this should be laid in schools, but it requires the practice of a life to acquire the full compass of our noble tongue.

(3.) *Classes for mutual instruction or simultaneous reading in some one branch of study*, or for a more extended pursuit of some branches connected with the various trades and pursuits of cities, under well qualified teachers.

(4.) *Popular Lectures*—embracing *First*, regular courses in the various departments of science, and *second*, miscellaneous lectures, each complete in itself. Their object should be not only to give solid instruction in such branches as admit of being taught by lectures with experiments and diagrams, but to supply interesting and profitable topics of conversation, stimulate inquiry, direct the reading of the community, bring all classes together in sympathy with great truths and noble deeds, and thus break down prejudices which grow out of non-acquaintance, and cultivate happier social relations.

(5.) *Collections in Natural History.*

(6.) *Museum of the Useful Arts*, such as models of the steam-engine, and of its many applications in manufacturing and mechanical establishments; drawings or models of new inventions to abridge human labor or increase the comforts of life; specimens of the mineral, animal, and vegetable substances used in the arts; copies and lessons for architectural and mechanical drawing, &c.

(7.) *Gallery of Paintings, Sculpture, and Engravings.*

These various departments exist in an imperfect and fragmentary form, as distinct institutions in some of our cities, but they should be extended, perfected and brought together under a more efficient organization. A single general organization, with subordinate sections or departments, is preferable, inasmuch as it prevents that classification of society according to the employment or pursuits of men, which will inevitably grow out of the other arrangement.

In even this condensed statement of the main points of my discourse in behalf of the Young Men's Institute, as part of a broad system of schools and institutions for the moral and educational wants of a community like Hartford, it will be seen, that on the question of a Public High School, my voice at least did not utter an uncertain sound. My views, as expressed in 1838, and as written out three years before, have undergone no material change, and they were founded on a careful study of our New England system, the parochial and burgh system of Scotland, the best school systems of Germany, and the school law framed for France by Cousin and Guizot, both of whom recommended and provided a superior school or communal college corresponding to our Grammar School of the code of 1650.

In my official labors "to ascertain the condition, increase the interest, and promote the usefulness of Common Schools," the restitution of this fundamental principle to the system, and its development to meet the social circumstances of our times and the varying conditions of population and occupation in our cities and large villages, was a cardinal object. It crops out in my addresses, circulars, Journal, personal efforts as school visitor in Hartford, and in every report to the Legislature from 1839 to 1842. To my last Report for 1842 was appended a document on a System of Public Schools for Cities and Populous Villages, in which the High School feature is pretty thoroughly discussed and illustrated by a statement of its organization and results under the best systems in other States. This document, the Committee on Education in the Legislature of Connecticut* for the year of our Lord 1842, and of the commonwealth the 206th, refused to have printed at the public expense, or with any legislative sanction, expressly on the ground set forth in their printed report, "that it is extremely doubtful whether branches of an education of a higher order, tending to qualify our youth for admission into higher seminaries of learning, would be politic, or would come within what is believed to have been the intent of the founders of the School Fund."

One of the most efficacious measures for awaking public interest and eliciting intelligent discussion of the actual condition of Common Schools, resorted to, was a series of public meetings held every year, one in each county, and one for the State. As a specimen of the topics discussed in these conventions, which were held at the call, and generally at the individual expense of the Secretary of the State School Board, I will cite from a printed account of the proceedings of a State Convention held at the State House in Hartford, and by adjournment, at the Lecture Room of the Center Church, August 28 and 29, 1839, of which Seth P. Beers was president; Thomas S. Williams and Dr. Field, vice-presidents, and Jesse Olney, and Rev. D. H. Short, secretaries. In the course of the six sessions, essays were read by Prof. Calvin E. Stowe, on the *Necessity of increased efforts to sustain and extend Common School Education*; by Mr. Cushing of Boston, on *Division of Labor in Teaching*; by Mrs. Sigourney (read by Mr. Everett), on the *Cultivation of the Perception of the Beau-*

* This fact coming to the knowledge of Hon. James S. Wadsworth of Genesee, New York, when on a visit to Mr. Daniel Wadsworth of Hartford, in June, 1842, he had the document printed at his expense and 30,000 copies distributed gratuitously in the cities and villages of New York, and other States. There are those who think that this document, coupled with the personal efforts and counsel of its author, has been instrumental in determining the present school organization of over sixty of the principal cities of this country.

tiful; by Rev. Emerson Davis of Westfield, Mass., on *Philosophy of Mind as applied to Teaching*; by Henry Barnard, on *Institutions and Agencies for the Professional Training of Teachers*, on a *Gradation of Schools in Cities*, on *Vocal Music and Drawing in Schools*, and on *School-Architecture*; by Alexander H. Everett, on the *Progress of Moral Science*. The topics formally presented in the lectures and essays were afterwards freely discussed.

The topic of absorbing interest was the condition and improvement of Common Schools in cities. Every city in the State was represented, and the deplorable state of the schools, as to school-houses, non-attendance, and irregularity of attendance, the want of classification, the multiplicity of text-books, the number of adventure schools, and the deadness of public and parental interest in the whole subject of Schools and Education, were dwelt on. This topic came up at every session, as will be seen from the following paragraphs of the published report of the proceedings.

After the lecture of Prof. Stowe, Mr. Barnard spoke on the importance of a gradation of schools, especially in the populous districts, and recommended strongly to such districts as were conveniently located for this purpose, to associate and form a Union District, so that the younger children of each could be taught where they are now under a female teacher, and the older scholars of the uniting districts be placed in a Union School.

Wednesday Morning.—Prof. Stowe of Cincinnati, by special request, gave an account of the Public Schools of Cincinnati, which he considered equal to those of any large city in this country.

The Committee on business, presented the following question for the consideration of the Convention:—"What can be done to improve the condition of the common schools in our cities and populous villages?"

The Secretary of the Board, by the way of introduction, stated that the deficiencies of our school system, with two exceptions, were more apparent and more alarming in the cities and populous districts, where there were the more abundant means, and the strongest necessity to maintain good schools, than in the country—that five-sixths of all the non-attendance at any school in the State, was found here—that a large proportion of the children who draw public money were in private schools, and that the greatest indifference as to the improvement of the schools prevailed. Mr. Barnard dwelt on the establishment of a more vigorous and generous system for these towns, which should result in making the public schools the *best schools*, otherwise they could not compete with the private schools. He concluded with alluding to the system of public schools in Boston as in advance of all other cities, mainly because the State had authorized and directed and the city had always maintained a graded system. The Latin School was the oldest and best school in this country.

Mr. Everett then gave an account of the public schools in Massachusetts, dwelling on the Grammar Schools, or schools of a higher order, which every town containing 500 families are obliged to maintain. This order of schools supplied a want which otherwise would be met by expensive private schools, and yet was as free as the district school. Mr. Emerson, of Boston, followed with a more particular account of the public schools of Boston.

Thursday, Aug. 29.—The question respecting Common Schools in the cities, etc., was resumed and discussed by the Rev. Dr. Field, T. S. Perkins, Esq., New London; L. Kennedy, Esq., Hartford; Rev. Mr. Bacon, W. G. W. Fitzgerald, and Mr. Lines, New Haven; Rev. Mr. Burgess, Prof. Stowe, and Mr. Barnard.

Thursday Afternoon.—The discussion of the morning was resumed and carried on by Dr. Field, Rev. Mr. Bushnell, Gen. Johnson, Rev. Mr. Brewer, Messrs. Barnard, Kennedy, Pierce of New York, Baker of New Hartford, Webb of Middletown, and the Rev. Mr. Short of Danbury.

Thursday Evening.—Rev. Mr. Burgess introduced the following resolution, to embody the sense of the Convention on the subject which had occupied so much of its deliberations—which was adopted unanimously.

Resolved, That in the judgment of this Convention, it is of primary importance, for the improvement of the public schools in our cities and populous villages, that in all such places, the schools shall be so graduated as to form a system, which shall afford to all children in the community, not only the first elements of knowledge, but, so far as may be possible, the best education which their age, leisure, and intellectual powers will qualify them to receive.

The Committee of Arrangements submitted the following resolution bearing on the same subject, which was also adopted unanimously:—

Resolved, That for the purpose of securing the proper classification of our schools, and to admit of the application of the greater principle of the division of labor in the work of instruction, the younger children of a district should be taught by themselves, in distinct departments, and more advanced pupils be placed under the constant care of a qualified teacher; and to this end, it be recommended, to such districts, as admit of it, to unite and form a Union School, as provided for in the "Act concerning schools."

Besides the State Conventions, and growing out of them, County Associations for the Improvement of Common Schools were formed in each county, which proved highly serviceable in the discussion of topics of school reform. Among the topics introduced in the opening address, which from my official relations to the schools I was accustomed to make, was the evils resulting from the multiplication of small districts, and the advantages to be gained in better houses, better classification of pupils, a more systematic course of studies, and larger means to employ better teachers for a longer period of time, from a union of all the village and city districts. In the three county meetings held in this city for Hartford County, this subject was introduced and the importance of a Public High School to this city was dwelt upon.

In addition to the County Associations, the formation of Town Associations had been recommended in the Address of the Commissioners of Common Schools, and by most of the County Conventions and Associations. In the Circulars addressed by me in 1838, and in 1839, to the School Visitors, I urge upon them the formation of such Society or Town Associations; in pursuance of which an Association was formed in Hartford in 1838-9, of which Rev. George Burgess was President, and I remember distinctly his calling on me to consult as to the direction in which the Association should put forth its labors, remarking that the number of members at present was *five*, two more than attended the annual meeting of the First School Society of Hartford, with upwards of 10,000 inhabitants. Among the subjects, on which we were quite agreed, was the establishment of a Society High School, or a City Union School, under the Act of 1839, as should be found practicable—to which the attention of the Visitors had been directed in 1838, and again in the Circular of 1839 issued immediately after the adjournment of the Legislature, which had authorized the union of School Districts, and at the same time enlarged and defined the powers of School Societies, for this purpose.

In the Connecticut Common School Journal, of which the prospectus was printed within a week after accepting the office of Secretary of the State School Board,—and the first number was issued within a month without a single subscriber, and without the pledge of a single dollar to meet the probable failure of the enterprise as a paying periodical—from the first number to the last, there are some topics discussed bearing upon this important subject. In the second number, for September 1838, is a circular of the Secretary, in which sixteen inquiries are addressed to the School Visitors of each school society, the second of which relates to the gradation of schools in each district, and the third is as follows: "Has your school society availed itself of the provision of the law so far as 'to institute a school of a higher order for the common benefit of the Society?' and if not, do you consider it practicable and advisable so to do?" In

the third number (October, 1838), after discussing the classification of schools in our large towns, quoting the experience of Hartford favorably so far as carried out in the city districts, the question is asked, might not a high school, or grammar school such as is provided for by our laws, be advantageously established near the common center of several districts and (in another paragraph) of several adjacent societies? A high school at or near the central point of four towns would enable the advanced pupils of each town to enjoy the privileges of a higher education. In the fifth number (December 1838), in a circular addressed to the Vice-Presidents of the County Associations, who were presidents of the Town Associations, the classification of scholars and schools was commended to the consideration of school officers and associations; and so on through the four volumes, the last of which volumes (for 1842) contains Dr. Bushnell's Report and an account of graded schools in different parts of the country; and the last page of this last volume contains the report of the Joint Standing Committee on Education in the Legislature of Connecticut for 1842, in which a petition of sundry citizens of Hartford is cited, "praying the repeal of certain sections of the *Act concerning Common Schools*, establishing High Schools, or Union Districts, and that taxes may be raised as formerly on the polls and ratable estates of the inhabitants of school districts," in conformity to which, said Committee, in their report, recommend the repeal of the sections referred to; but in the bill drafted and submitted for this purpose, and passed, the important section relating to School Societies was omitted, and thus the important provision, under which the First School Society of Hartford in 1847 established the Public High School, was left in the Act. The Committee in their Report, recommending the repeal of the sections prayed for by the petitioners from Hartford, remark:—"Those branches ought to be taught which may the most readily be brought into action, and enter into our business concerns. Hence those of reading; writing, and arithmetic enter into our daily avocations in life, and when once fully learned, are rarely forgotten; those of English grammar and geography are next in importance, and are *the only studies*, in connection with the fundamental branches, that ought, in our opinion, to be taught in our Common Schools. * * * And it is extremely doubtful whether branches of education of a higher order, tending to qualify our youth for admission into higher seminaries of learning, would be politic. A general law for that object may also be dangerous. The remedy in such cases can be supplied by associations or by Acts of incorporation"—in other words, in select, private, or incorporated schools, practically out of the reach of the poor.

In 1839, as member of the Legislature, I drafted and secured the passage of an Act by the first section of which "each School Society was authorized to establish common schools of different grades, to build school-houses, lay taxes, and make all lawful agreements and by-laws for the free, equal and useful instruction of all the youth thereof." By subsequent clauses, provision was made for the formation of a Union District, out of the adjoining districts in cities, and other School Societies, with power "to maintain a Union School for the benefit of the older and more advanced children of such associated districts." It was under the provision of this Act, that the "School Battle" as it was called, of 1841-42 was fought in the school-houses of the three City Districts; and the establishment of the Public High School of the first School Society of Hartford was secured in 1847.

In the Report of the School Visitors of the First School Society of Hartford, submitted by Rev. George Burgess, October 7, 1839, we find the first fruits of the agitation inaugurated in 1838. All the topics suggested in the first Circular of the Secretary of the Board, addressed to school visitors, teachers, and the friends of school improvement generally, in August, 1838, are introduced and several of them discussed at some length, such as the influence of select schools in the absence of good public schools, and especially one of the highest grade; the necessity of substituting property taxation for the rate-bill as at that time made out; the visitation of schools by parents; and the establishment of seminaries for the education of teachers. To this document is appended a report of the Hartford Town Association for the Improvement of Common Schools, which had been established "under the recommendation of the State Commissioner of Common Schools," and the results of the inquiries and deliberations of the Executive Committee are submitted "in discharge of a duty committed to them by the highest authorities." This report points out the advantages of a system of public schools for the city or society, "under the provision of the existing law of the State (act of 1839), which allows the union of two or more districts for the purpose of establishing a school of a higher order; and also permits any school society, as such, to establish within itself, and maintain by tax, any number and system of schools; and this committee believe, that one or other of these provisions of the law may be advantageously employed at present in this society." The committee therefore "respectfully suggest, that a single school of a higher order than either of those which now exist should be established by a vote of the society; or if it should be preferred, that the several districts embraced within the limits of this society should be invited to unite for the purpose of establishing such a school; and that in that event, should the districts without the city decline such a union, it be still proposed on the part of those within the city."

The subject thus brought before the Society in 1839, was referred, on my motion, to a committee (consisting, as afterwards appointed, of Burgess, Mitchell, Barnard, Johnson, Hamersley, Davies and Gallaudet), "to consider the expediency of establishing a High School for the older and more advanced scholars of this school society, and to inquire into the expediency of consolidating the several school districts embraced, in all or in part, within the limits of the city of Hartford, so as to bring all the schools into one system of superintendence and support, and to report to an adjourned meeting their views, with such plans to improve the condition of common school education in this Society, as they may deem best to be adopted at this time." At an adjourned meeting held at Gilman's Hall, Nov. 5, this committee made a report, prepared by me, in which they "propose that a separate school for the instruction of such pupils of both sexes as shall have reached the age of twelve or thirteen years, and shall have sustained a proper examination with reference to their admission," and close with three resolutions: "(1.) That it is expedient that a Public High School shall be established; (2.) That a tax of one cent on a dollar be laid to meet the expense of such school; (3.) That the several incorporated districts be invited to consider the expediency of dissolving the division of districts within this Society, and of classifying the schools under one system; and, if they shall approve this course, to pass such votes as may be necessary for carrying it into effect." The report was accepted, and the resolutions passed, with a

vote "appointing Henry Barnard, W. J. Hamersley, Henry A. Mitchell, Nathan Johnson, and H. Huntington, a committee to carry into effect the third resolution; and another requesting the committee of the School Society to call a special meeting on the 15th for the purpose of carrying into effect the first and second resolutions. Legal notice was given, and on the 15th of November a special meeting was held in the City Court Room "to lay a tax and adopt such other measures as may be necessary to establish a High School for the older children of the Society." At this meeting, Mr. Mitchell offered a resolution in pursuance of the action of the School Society, which after a prolonged discussion, was postponed for further consideration to an adjourned meeting on the 6th of December; when a new committee was appointed and instructed to present a plan of union for four in place of the three districts, thereby practically defeating the object; and another committee was appointed to inquire into the present condition of the Grammar School, and its relations to the higher education of the Society.

At the adjourned meeting held in the City Court Room December 6, 1839, the committee on the union of the four districts, of which I was one, reported that they were divided on the policy of a Society High School, but united in recommending a union school, for the older children of such districts as should vote to unite for the purpose; and in the meantime, advised such pupils in the outer districts to apply for admission to the upper classes of the Center District, which were open on paying a small tuition fee. The committee on the Grammar School, through their chairman, L. Kennedy, Jr., reported in substance that they found the management of the School practically in the hands of the principal, who received the use of the school-house without rent, and five hundred dollars a year from the fund, and admitted no pupils to the advantages of the school except on payment of six dollars per quarter, payable in all cases in advance. This practical abandonment of their trust, and the requisition of tuition from all who applied, to a school which in its institution was called *free*, the committee thought justified an application to the Legislature, either to annul the charter, or to modify the same so as to give the town some share in the management, and indigent children some advantages of the school. A committee to prosecute the subject further through a town meeting was appointed, consisting of J. M. Niles, L. Kennedy, Jr., and Gideon Welles. To this policy I was opposed, first because the lands given by the State, and the bequests of individuals, at least a portion of them, did not contemplate solely the town or even the county of Hartford, but all children who might come from any quarter in these plantations for instruction in the Latin language and to prepare for college; and second, because in the existing low estimate of the scope of public instruction, there was danger of losing even the limited facilities of higher education which the Grammar School afforded. On my motion another committee was appointed (Philip Ripley, H. A. Mitchell, and Henry Barnard), "to confer with the Trustees of the Grammar School in regard to an arrangement to extend the benefits of that school more widely to the older children of the town." In behalf of this committee, several interviews were had with the president and other members of the Board, and the strongest assurances were given, that when any authority, representing the town, society, city, or any number of united districts, was prepared to maintain a public school of a higher order on a permanent basis, they would be ready to cooperate in sustaining the depart-

ment, to which the grants of the State and the bequests of individuals had been given, and which they were appointed to administer for the benefit of all concerned. By this assurance, which I had received early in 1838, my own discussion of the subject had been governed, and I abstained from introducing, except in a general way, classical studies, or alluding in any way to the Grammar School, believing when this community was prepared to act with liberality in establishing a high school, the Trustees would be quite as far advanced in the same direction.

In 1840, with enough else to do to occupy all my time, I consented to go on to the Board of School Visitors, with a full understanding with my colleagues (some of the best men in the city) that the Board would investigate thoroughly the condition of the public schools, and education generally in the city, and would not hesitate to grapple with the problem of reorganization, if the facts should call for it. With that view, for the first time the condition of the schools, as to attendance, school-houses, subjects and methods of instruction, supervision, mode of support, compensation of teachers, and parental interest, and the number, attendance, and special character of each private school, were carefully ascertained, and the results were presented in a series of propositions which were accepted by the Board, together with a Plan for consolidating the three City Districts into one, and establishing a system in which two High Schools, or one with two departments, one for boys and the other for girls, formed an essential feature. The following are the features of the Plan submitted by me for the City Districts:—

1. To consolidate the districts into one, for the purpose of bringing all the schools into one system of management, studies and books, and of making the school interest one of the leading interests of the city.

2. To establish such a system or gradation of schools, as shall secure as thorough a course of instruction for all the children of the city, rich or poor, as is now provided in the best private schools. The committee propose for consideration the following outline:—

First—Primary schools to be located in different parts of the district, for the young children, where all of the arrangements of the school-room, the playground, and the exercises, shall be adapted to promote the health, manners, moral culture, and the gradual and harmonious development of the mind of the young. The alphabet, easy lessons in reading, oral instruction in respect to real objects, maps and figures, habits of observation, vocal music, and drawing on the slate, would form the course of instruction for these schools. They are to be taught by females, and we would add, they should be under the supervision, in part at least, of the mothers of the district.

Second—Intermediate or secondary schools. These schools are to take up the education of children, when the primary schools leave it, and to carry it forward to as high a point as is now attained in the first classes of the present schools. Two schools of this class, if properly located, would answer, but owing to the location of the present district school-houses, three might be necessary at first. Each school would require a male principal of the first order of qualifications—a female principal, and a sufficient number of female assistants.

Third—Two High Schools, or one with two departments, one for boys and the other for girls, to which the pupils who shall be found qualified in the studies of the secondary schools, on due examination, shall be admitted, and there taught the higher mathematics, mechanical and natural philosophy, natural history, physiology, moral and mental philosophy, political economy, the constitution of the United States and of Connecticut, American history and biography, book-keeping, rhetoric, and drawing with reference to its use in various kinds of business. To these, or to so much of them as might be deemed advisable, a preparatory classical course could be added without increasing the expense. This department, if established at all, should be capable of giving

a thorough English and a preparatory classical education, so that those who know what a good education is, may be anxious to avail themselves of its advantages, and the poorest parent who has worthy and talented children, may see the way open for them to all the advantages of a good and eventually a liberal education.

3. The studies, books, discipline and supervision of the schools, and the management of the property and concerns of the district, are to be intrusted to a Board, two-thirds of whom shall be elected annually, and the other third hold over. It is also proposed, for the purpose of giving efficiency to the action of the Board, that they elect a superintendent, who shall visit the schools, employ the teachers, meet with them for instruction, visit the parents and guardians of such children as are not sent to school at all, or attend irregularly, see to the repairs and management of the school-houses; in fine, to devote his whole time to the prosperity of the schools.

4. The schools are to be free, and to be supported like any other great public interest. The education, so far as it goes, is to be as good as money can secure; and then, like the light, air, and water, it is to be open alike to rich and poor.

The Plan for the reorganization of the City Districts, and summary of the condition of the common schools generally in the Society, were approved by the Visitors, and on my motion the plan was referred to a sub committee to elaborate, and commend in a special Report to the intelligent and effective sanction of the Society and the City Districts. The general features of the two Reports were approved by the School Society, and the question of consolidation was referred to the Districts directly interested for their action. The Report of Dr. Bushnell was such a masterly discussion of the whole subject,—the policy of a consolidated in place of district or divided administration; the advantages of a closely graded system for the whole city, terminating in a Public High School, in place of a more loose and differing gradation in the three districts, without scholars enough in either to constitute a school of the highest grade; the right and policy of property taxation for school purposes; the evils of the early withdrawal of children from school from the want of additional instruction which a high school would afford; the advantages of a union of the Hartford Grammar School with the City High School to both, in the more full realization than has yet been possible, of the intent of the donors of the fund by which the Grammar School is supported; the evils of private schools covering the same ground with the public schools, and attended by the wealthy and educated only, and thus creating a separation, when the whole law of American citizenship requires harmony of views and interest; so satisfactorily were these and other topics treated, that I printed the document, with an account of the school systems of Boston, Nantucket, Charlestown, Roxbury, Lowell, Portland, Philadelphia, Cincinnati, and Louisville, for gratuitous circulation in other cities of the State, where the same suggestions were applicable.

The District Meetings which followed in the winter of 1842, will not soon be forgotten by those who participated in the discussions, or witnessed the grim satisfaction which interested tax-payers seemed to take in blows given and returned in a cause so domestic and peaceful, theoretically considered, as that of Education; "Vested rights," "steady habits in the good old ways," "no taxation for other peoples' children," "let well enough alone," "what was good enough for the father was good enough for the son," "none of your high schools for me"—these were the phrases and topics which abounded in the nine meetings which were held in the three City Districts, before the votes were reached by which two of the districts assented to the proposition of consolidation.

Governors and ex-governors, judges and senators, lawyers, doctors, clergymen (and none did better service than Drs. Bushnell and Burgess), editors, bankers, mechanics, representatives of all occupations, shared in the discussions; but owing to the political connection of some of the prominent advocates and opponents of the scheme, the vote actually given, especially in the South District, where the vote was adverse to the union, was not always on the merits of the question actually discussed.

With the apparent failure of all my plans, in the reactionary legislation of 1842, I did not despair, either of the commonwealth or of the city, and much less of the cause of a broad and liberal system of common schools for the whole country—and I shall be pardoned for citing here the closing passages of a speech made by me at a little earlier period (1839), in view of the probable failure of a proposition (the earliest legislative measure in this direction proposed in this country) to establish Teachers' Institutes in this State:—

The appropriation thus applied, so as to improve the teachers now in the school, and create in them a thirst for something higher and better than can be given in any temporary course of instruction, will lead to the establishment of an institution for the professional education and training of teachers, the great agency by which the cause of education is to be carried upward and onward in this State. Though the prospect is dark enough, I think I can see the dawning of a better day on the mountain-tops, and the youngest members of this House, if they live to reach the age of the oldest, will see a change pass over the public mind, and over public action, not only in respect to the professional education of teachers, but the whole subject of common schools. Old, dilapidated, inconvenient school-houses will give place to new, attractive, and commodious structures. Young children will be placed universally under the care of accomplished female teachers; female teachers will be employed in every grade of schools as assistants, and in most of our country districts as sole principals: a school of a "higher order" than the district school will receive the older boys and girls, not only of a district, but of a society, and the common school will no longer be regarded as *common*, because it is cheap, inferior, and patronized only by the poor, and those who are indifferent to the education of their children, but common as the light and the air, because its blessings are open to all, and enjoyed by all. The passage of this resolution will hasten on that day; but whether the resolution is passed or not, that day will assuredly come, and it will bring along a train of rich blessings which will be felt in the field and in the workshop, and convert many a home into a circle of unfading smiles. For one, I mean to enjoy the satisfaction of the labor, let who will enter into the harvest.

Others have entered into the harvest; but it has been my highest happiness for thirty years to work on in the same direction, with or without coöperation, in or out of office, here and elsewhere, as opportunity offered or circumstances compelled, until I have seen every provision drafted by me which was stricken from the statute-book of Connecticut in 1842, restored, and many more recommended by me, not only placed in the school-law, but become part of the school habits of this people; and more than this, I have lived long enough to see nearly all the cardinal features of city and State school organization advocated in this city from 1838 to 1842, and denounced "as the impracticable schemes of an enthusiast," ingrafted into the constitutions of fifteen States and the school systems of thirty-five States, and upwards of one hundred cities, including all having over 40,000 inhabitants, and many more with a smaller population.

The credit of reviving the discussions of a Public High School for this community, after the failure of the plan submitted in the Annual Report of the School Visitors, and of the Special Report of the sub-committee in 1841, and

of carrying it through to a triumphant consummation, is due, more than to any one man, to *James M. Bunce*, who in this matter acted in pursuance of the suggestions, substantially in the direction, and with the coöperation of the originators and advocates of the former plan.

In the summer of 1845, the American Institute of Instruction, at the earnest solicitation of myself, one of the directors, held its regular annual meeting in this city, and in the entertainment of the lecturers and members from abroad, and local expenses of the meetings, Mr. Bunce took a liberal share. Among the subjects introduced in the sessions, which occupied three days, was the gradation of public schools in cities, in the discussion of which Mr. Nathan Bishop, Superintendent of Public Schools in Providence, G. F. Thayer and W. B. Fowle of Boston, and myself, took part. In this discussion, the importance of primary schools planted in every neighborhood, so as to be within reach of all the youngest children; and of one or more schools of the highest grade, so as to meet the wishes of a class of parents, who would otherwise provide for their own children in other schools, which would be inaccessible to children equally deserving, but too poor to pay the expense of residence, if abroad, or the tuition, if in the city.

On these discussions, which had special reference to the condition of schools in this city, and the exercises generally of the Institute, Mr. Bunce, who had taken no active part, and manifested no special interest, in the subject of school improvement, either local or general so far as I can now recollect,* was a regular attendant, and expressed himself highly pleased and interested, and felt mortified that such lectures should have an attendance so small. "This ought not to be, and shall not be, if I can help it, on another occasion of the same kind;" and it was not, as those who can recollect the large and enthusiastic attendance of our citizens on the School Convention or Teachers' Institute held here November 16, 17, 18, 19, 20, and 21, 1846—the preparation for which was made mainly at his expense, and by the personal visits of Rev. Merrill Richardson to teachers in different parts of the county. That Convention, and his previous offer of \$100 for the best "Practical Essay on the necessity and mode of improving the Public Schools of Connecticut, and of adding to the schools in cities a department of instruction in the higher branches of education," and his efforts afterwards to establish a High School in Hartford, as he often remarked to me, I always supposed was due, in part at least, to a letter addressed by me to him in the autumn of 1845, in reply to an invitation addressed to me (then Commissioner of Public Schools in Rhode Island), to resume my educational labors in Connecticut under the pledge of pecuniary and personal coöperation from himself and others: and in case I could not accept, "to tell us what to do and how to do it, to revive the interest which had begun to manifest itself all over the State, and which the disastrous legislation of 1842 has almost extinguished. I should like to do something practical for Hartford, and for Connecticut, and I should like to do it under your direction, and if possible with your personal coöperation. Come out of the wilderness,—I mean no disrespect to our brave little neighbor—and help your own birthplace and State, at least by your advice."

* Mr. Flavius Brown thinks that Mr. Bunce's interest in the subject of a High School originated in a visit to the Center District School, while that excellent teacher, Mr. Gallup, was principal (1845), and that the germ of the High School was in the advanced classes of this school.

To this invitation the following are among the suggestions returned, as published in the History of Teachers' Institutes in Connecticut:

I cannot leave my present field—my hand is on the plough, which is deep in an almost unbroken prairie turf, but I expect to see what you call a "wilderness," blossom as the rose. I shall here work out my plan of school improvement by educating the public mind up to the appreciation of the necessary conditions of a successful system of public schools, cheap enough for the poorest, and good enough for the best citizen, and at the same time train the agents in the administration of such a system—teachers, officers and parents. It will take time and work—but I have schooled myself "to labor and to wait." The work to be done here is substantially the work which has to be done in Connecticut and every other state—the *public mind must be enlightened as to all the details of the system, the indispensable features of a school law, the requisites of a good school house, the necessity of regular and punctual attendance, the proper distribution of studies and children into schools of different grades, and the classification of every school of any grade, and above all as to the qualities and qualifications of good teachers, and how to select, train and improve them, and especially how to make the most out of such young men and young women as will, until public opinion is made right as to the requirements, rush into the business without the requisite knowledge, and especially without any training, or apprenticeship in organizing a school, and communicating instruction, and governing and stimulating children by the highest motives.* Now in reply to your inquiry—out of all this field of work, what you should select to do first, and at once, for Hartford, and Connecticut. I should advise, for Hartford, the establishment of a Public High School with, or without the consolidation of all the city districts into one, and all the schools subjected to a Board of Education acting through a Superintendent. The great work for the State is the enlightenment of the entire population, who are ignorant as to the conditions of a good school, full of conceit as to the superiority of their own schools, which were once in advance of those of other states, but which no longer meet the requirements of the age, and in consequence, are no longer attended by the children of those parents who are themselves well educated, or who know what a good education is. But the system itself—its legal organization, is radically defective in reference to the changed condition of society, and especially in respect to the mode of supporting schools, and the employment, training, inspection and payment of teachers. My advice is to bring up these subjects, including the right and duty of taxation for school purposes, subordinate to the methods and the demonstration of the proper qualifications of teachers, in a series of evening meetings, held as part of a Teachers' Institute, substantially like those established in Hartford in 1839. The leading features should be the same, but I would advise sessions of not more than a week,—no longer than you can keep up the enthusiastic interest and attention of the members, who should be distributed through the families. This is an essential feature of my ideal of a Teachers' Institute, held in reference not only to the professional training of its members and their knowledge of society, but to the development of parental interest and appreciation of their work, as well as to local school improvement. I never have seen a gathering of parents of any class, who could not be interested in the subject of schools and education, if discussed in a practical way, and especially in reference to their own children and schools. If I am correct in this observation, you had better discuss the establishment of a City High School, when the public mind is interested and the parental heart is warmed by the protracted discussions and addresses of a rousing Teachers' Institute. You will thus benefit directly a large number of teachers, who will directly benefit as many school districts, and the improvement thus begun, will be perpetuated by attendance on other Institutes in all the cities and large villages of the state;—and in any place where your meetings are held, (provided they are wisely managed,) great local improvements in reference to school-houses, attendance, gradation, classification, books, apparatus, instruction, discipline, parental co-operation, supervision, &c., will be begun, advanced, or perfected. Begin, therefore, with arresting the attention of the Legislature and the people by the voice and the press—get at, and get together as often and as many teachers as you can, especially the young—get parents in to listen to the discussions of education

al questions, and the exhibition of good methods, and the exposure of bad methods both of instruction and discipline,—and in due time, longer or shorter, just in proportion to the number of meetings of the right kind you hold in the places which need the quickening influence of discussion and light, a revolution will be achieved in the school habits, and the school law of Connecticut.

The preparation of a lecture, to be delivered in different parts of the State, on the topics discussed in the Essay, was first proposed to me by Mr. Bunce, and was declined, not only on account of existing engagements, but from a conviction that the sum which he proposed to pay for the composition, if offered in the form of a premium, would arrest the attention of many persons, and might call new laborers into the field. The subject of the Essay, as originally written, did not contain the second clause (respecting a Public High School in cities), which was added on my suggestion. Prof. Porter of Yale College, then a resident clergyman in Springfield, and familiar with the schools in Connecticut from having acted as School Visitor in New Milford, where we had frequently talked over the whole subject in his house on my annual school circuits as Secretary of the School Board in 1838–42, was induced to prepare an essay for this competition at my earnest solicitation, satisfied that his experience and residence in Massachusetts would bring fresh views and facts into the discussion. The award was made in favor of his Essay by the executive committee, consisting of Rev. George Burgess and Dr. Gallaudet.

The principal measure suggested in my letter in 1845, and among those advocated by Prof. Porter for the State generally in his Prize Essay in 1846, was a Public High School, and, in connection with it, a Teachers' Institute for Hartford County, to be held in Hartford, as a preliminary agency for arousing public attention to the whole subject of school improvement. In this connection I can not better express my appreciation of the efficient labors of Mr. Bunce than by citing the following paragraphs from a chapter in my *History of Common Schools in Connecticut*, printed some years ago:—

Mr. Bunce, having put his hand to the plow, did not look back till he had driven the ploughshare deep into the public mind. In connection with a few other citizens of Hartford, he determined to realize some of the suggestions of improvement set forth in the Prize Essay. A Convention or Institute of Teachers of Hartford County was determined on; and, to perform the preliminary work of a State officer, he employed Rev. Merrill Richardson, a gentleman admirably fitted for the purpose, to visit every town in the county, and awaken an interest in the purposed meeting. The Convention was held in November, and two hundred and fifty-four teachers were in session for one week, under the instruction of educators and lectures. This gave a powerful impulse to the public mind. A monthly School Journal, under the name of the Connecticut School Manual, was started, in January, 1847, under the editorial charge of Mr. Richardson. Other Institutes were held in the spring, at Tolland, Winsted, and Meriden.

But the zeal and liberality of Mr. Bunce did not end here. Aided by others, he resolved to do all in his power to bring about the establishment, in Hartford, of a Public High School for the older scholars of the First School Society, and of a Normal School for the State. First in the order of trial, the plan of a Public High School, which we first proposed in 1838, was revived. No pains were spared to inform and interest the public in the enterprise. Public meetings were held, in which elaborate and animated debates were conducted by the most prominent speakers of the city. Individuals were seen and conversed with. The ignorant were informed; the indifferent aroused; the rich were made to see that property would be more secure in a well-educated community; and the poor, to feel that they could not have the advantage of good schools, without these schools were also cheap. The public press was enlisted, and

pamphlets published and distributed, in which the whole subject was fully explained. Seldom has the public mind of Hartford been more deeply interested in any enterprise; and, finally, the plan was carried by an overwhelming vote of the largest town meeting ever held in Hartford. Much of the expense of all these preliminary movements was borne by Mr. Bunce; and to the completion of the building, he contributed \$1,000 beyond the amount voted by the society. While this movement was going forward, Mr. Richardson, by his addresses and in the "*School Manual*," was laboring to prepare the way for the establishment of a Normal School, and to this enterprise Mr. Bunce offered to contribute \$5,000.

After the Teachers' Convention was held, and Mr. Richardson was employed in continuing the agitation which was started, or rather revived (for the measures resorted to were identical with those inaugurated in 1838) by its proceedings, Mr. Bunce turned his attention and efforts exclusively to a High School for Hartford.* The legislation of 1842 had taken away all facilities for uniting the city districts, and the only way open (and this it was the intention of the committee in the Legislature in 1842 to close), was through the First School Society. I speak from personal knowledge, confirmed by the assurance of the partner in business at that time of Mr. Bunce, that for more than a year, and after even the High School was in operation, this gentleman gave up his whole time to this enterprise. No political campaign was ever planned with more care, no pecuniary investment with a keener scrutiny of all hazards, and provision for every condition of success. In the last week in December, so many of those who had opposed the consolidation of the districts had pronounced in favor of society action,—so many who were before indifferent had expressed themselves warmly in favor,—so many of the largest tax-payers had become satisfied, that in their near and far-reaching consequences, liberal expenditures for public schools of every grade was true economy—so many, blessed with children, but with moderate income, saw that the only chance for the best education for their children was in a well organized system of public schools in their own town—so many conductors of the public press had admitted articles or published editorials in favor—so many clergymen in the city had promptly welcomed the new movement—that Mr. Bunce expressed himself confident of a majority of two-thirds for the establishment of a public school of the highest grade, if every vote in the Society was polled.

On the evening of January 5, 1847, on notice in the morning papers (Jan. 1, 1847), a public meeting of citizens favorable to the establishment of a Public High School was held in the Center District School, of which Amos M. Collins was appointed chairman, and which after some discussion as to the precise object for which a meeting of the First School Society should be held, authorized a request in the legal form to the Society's committee to give the requisite notice. Resolutions to this end were offered both by N. H. Morgan and David F. Robinson, both of whom had taken an active interest in the Convention of November, the school movements of Rev. Merrill Richardson, and the proceedings which eventuated in the final vote of March following. Mr. Morgan had acted as school visitor, and otherwise labored long and hard for common

* The subject of a High School was not introduced into the lectures and discussions of the Convention, because the members were almost exclusively teachers from the country towns, and the topics were confined to subjects and methods of teaching. During its sessions I was addressing similar meetings in Michigan, Illinois, Wisconsin, and Ohio, on Graded Schools and Teachers' Institutes.

schools. Mr. Robinson had always identified himself with every movement in the South School District, the Society, and the city, for the advancement of public schools, and education generally. Mr. Bunce's name does not appear in the call or the proceedings of that meeting, or of any subsequent meetings, except as a member of the school committee of the Society, and until the final vote was taken on the evening of the 8th of March, when his name was placed on the committees to complete the work of that evening.

The notice was given on the following morning, and on the evening of January 11, 1847, the legal voters of the First School Society came together with a promptness and in numbers, which no question of water, fire, travel, or traffic, ever brought together before. Every body was there, and wondered that every body else had come, and all were surprised to find themselves so nearly of one mind. The object of the meeting was stated—a distinct but simple, and it would seem unobjectionable proposition to appoint a committee to inquire into the expediency of establishing a Public High School of a grade higher than the District Schools, the number of children of both sexes of proper age and attainments to attend, the cost of a suitable site, building and equipment, and the annual expense, to report to a future meeting, was presented, and discussed with ardor on both sides, and adopted with unprecedented unanimity. The enthusiasm of the meeting was all on one side, and the chief speaker in opposition, who from all his antecedents ought not to have been there, declared to me that "after the first five minutes he never spoke to judge, jury, or popular meeting, with so little hope of making a favorable impression, as on this occasion, and the worst of it was, the clergymen had studied the subject so thoroughly, they beat me both on the law and the facts."

The following is the form in which the Resolution passed Jan. 11th:—

Resolved, That Amos M. Collins, Rev. Dr. Burgess, D. F. Robinson, Walter Pease, Edward Button, Roderick Terry, and Timothy M. Allyn be a committee on behalf of this Society, to inquire as to the expediency of establishing a Public High School, wherein shall be taught such branches of general education as are usually taught in schools of like character, and can not now be thoroughly acquired in the District Schools—such High School to be under the regulations now provided by law, or hereafter to be provided by this Society; also to inquire as to the number of scholars of each sex of the proper age and attainment to attend such High School; also to inquire as to a suitable location, plan of building, expenses thereof, and the current expenses of supporting such a school, and what per cent. tax will be required for that purpose; also whether and upon what terms the funds of the Hartford Grammar School can be made available for its support, and to report the same, together with such other information as they may think advisable, to a future meeting of this Society.

After seven weeks of inquiry and consideration, the majority of this committee, through the Rev. George Burgess, submitted to a special meeting of the Society, hold at the City Hall on the 1st of March, 1847, a Report in which the several subjects referred to the committee were considered in the most thorough manner, and their conclusions stated in the most simple and conciliatory form. The committee close with submitting the following resolutions for the action of the Society:—

1. *Voted*, That this Society proceed to establish a free High School for instruction in the higher branches of an English, and the elementary branches of a classical education, for all the male and female children of suitable age and acquirements in this Society who may wish to avail themselves of its advantages.

2. *Resolved*, That (— — — —) be, and they are hereby appointed a building committee, who are empowered and directed in behalf of, and for the account of this Society, to purchase such site or lot of land, with or without buildings thereon, as in their judgment shall most economically and best accommodate the Society for a public English and Classical High School, and forthwith proceed to remodel, fit up, or erect, as they may find it necessary, a suitable building and outhouses for said school, with accommodations for not less than two hundred and fifty scholars of both sexes; also to prepare the grounds, erect necessary fences, provide suitable chemical, philosophical, and astronomical apparatus for said school; also to place in said building the necessary stoves or furnaces, seats, desks, and fixtures, the whole not to exceed in expenditure twelve thousand do^{ts}.

3. *Voted*, That the Society's Committee be, and they are hereby directed to borrow on the credit of this Society such sum or sums of money, not exceeding in all twelve thousand dollars, as the Building Committee, appointed by a previous vote of this Society, shall need in the performance of their duties as specified in said vote, and pay over the same to said Committee from time to time as required, taking proper vouchers therefor.

4. *Voted*, That a committee of nine, consisting of (— — — — —), be appointed to make, if practicable, such agreement with the Trustees of the Grammar School, as, in their opinion, shall be just and reasonable, for making the funds of said Grammar School available for the support of the High School, or some department thereof; also that the action of the committee in these premises be binding upon the Society.

After an animated discussion of the 1st Resolution, by which the Society ordains the establishment of a "Free High School," and various attempts to modify the same, its further consideration was postponed to an adjourned meeting to be held on the 8th.

On the 8th of March, the City Hall was crowded at an early hour, and according to the record—"The meeting was called to order by the Hon. A. M. Collins, Chairman, as per adjournment, and the minutes of the previous evening were read by the Clerk. The consideration of the 1st Resolution presented by the majority of the committee on the subject of a High School, was resumed, and after a full discussion, and the rejection of a motion to amend, it was passed. The 2d, 3d, and 4th of said Resolutions were then taken up and passed separately; the report of the majority of the committee was accepted and approved, and the Chairman was directed by vote of this meeting to fill, as early as practicable, the blanks occurring in the 2d and 4th of said Resolutions."

The Chairman subsequently filled the above blanks as follows:—The blank in the second resolution was filled by the names of D. F. Robinson, Thomas Belknap, James M. Bunce, Walter Pease, Jr., Edward Button, E. D. Tiffany, and A. M. Collins.

The blank in the fourth resolution was filled by the names of Rev. Dr. Burgess, Wm. J. Hamersley, D. F. Robinson, Rev. Dr. Bushnell, James M. Bunce, Rev. Mr. Turnbull, Francis Parsons, Gurdon Robins, and N. H. Morgan.

No further action on the part of the Society was called for until Aug. 6, 1847, when the committee charged with the erection of the building, having reported that the same would be ready for occupancy before the close of the year, they were authorized "to employ teachers, and make such other arrangements as were necessary for the opening of the school."

At the annual meeting held on the 29th of October, the committee reported that the building was completed, and would be equipped for occupancy within the sum of \$12,000, appropriated on the 8th of March for this purpose; that Joshua D. Giddings, who won his early reputation as a teacher in the common schools of this State, and was now at the head of the Fountain Street Grammar School in Providence, R. I., had been appointed principal, and that arrangements had been effected with the Trustees of the Grammar School, by which they will supply and sustain a teacher for the Classical Department; and close with an earnest appeal to the Society "to sustain the work so conspicuously begun, by appropriations liberal enough to make the school of the highest advantage to our children and to the credit and profit of the community in which we live." Resolutions imposing "a tax of one and three-fourths cents on the dollar on the polls and ratable estates of the inhabitants of the Society for the maintenance of the High School, and schools for the colored children," was passed, and another to effect the speedy and effectual organization of the High School, as follows;

Voted, That [blank afterwards filled with the names of D. F. Robinson, Thomas Belknap, James M. Bunce, Walter Pease, Jr., Edward Button, E. D. Tiffany, and A. M. Collins] be a committee to organize the said school at the earliest practicable time; to make all necessary rules and by-laws for its regulation; to determine the qualifications of the scholars who are desirous of being admitted thereto—either by themselves or through such persons as they may appoint for the purpose; to decide all questions relating to the admission of children and youth—provided that no scholars are to be admitted for pay; to provide for the expulsion of refractory and unmanageable pupils; and to discharge all the functions relating to said school which will not interfere with the school laws of the State.

On motion of L. W. Stuart the following Resolutions were offered and passed unanimously:

Whereas, in pursuance of a resolution of the First School Society of Hartford, the committee, styled the Building Committee for the High School, have, with great diligence and care, attended to the duties of their appointment; and whereas, particularly this committee, consisting of Messrs. J. M. Bunce, A. M. Collins, D. F. Robinson, T. Belknap, E. Button, E. D. Tiffany, and Walter Pease, Jr., have to the money appropriated by public tax, most liberally added the further sum of two thousand two hundred and fifty dollars from their private purses, to enlarge and beautify and render commodious the building for the High School, therefore

Voted, That the thanks of this Society be, and they hereby are gratefully tendered to the Building Committee for the assiduity and the liberality with which they have labored in the duties assigned them by this Society.

Voted, That the Clerk of this Society transmit a copy of this and the foregoing resolutions to the Chairman of the Building Committee, to be by him read to said committee, and also other copies of these resolutions, one to each of the gentlemen whose generous donations to the High School of Hartford, this Society does hereby acknowledge.

In the efforts put forth from 1845* to the decisive vote on the 8th of March, and even to the dedication of the building on the 1st of December, 1847, I had some share, although from holding office in another State, and from choice, my name is not attached, so far as I know, to a single document, and does not appear in the proceedings of a single meeting. When the work was undertaken by Mr. Bunce, and in every stage to selecting the teacher, he sought my counsel and coöperation; and both were given freely and promptly, although to do so, cost time and thought, and five visits from Rhode Island. In looking over the files of our Daily Journals for 1846-7, I find seven articles which were once in manuscript in my hand-writing; and in the proceedings of one of the crowded meetings which was held in the City Hall, I recognized the outline of an address for which I prepared a brief at the request of Mr. Bunce, to be used by some one who might not be as familiar with the facts and arguments as I was thought to be. Nearly all the allusions to the experience of other cities, and the estimated cost of the new school, were drawn from memoranda and documents which I furnished. The principal campaign document, entitled "*Considerations and Facts respecting a Public High School in the First School Society of Hartford*," in which the public character of the institution proposed, and the power of the Society to establish and maintain the same; the extent in respect to studies and persons (age, sex, and preparation) to which the instruction should be offered; the expense both of outfit of building and annual

* The following were the principal exercises of the session:—Introductory Lecture—*Dignity of the Teacher's Office and Female Education*, by Joel Hawes; *Duties of Examining Committees*, by Prof. Sanborn, of Dartmouth College; *Ideal of the Perfect Teacher*, by Prof. Olmsted, of Yale College; *Study of Physiology*, by Dr. E. Jarvis; *Intellectual Arithmetic*, by F. A. Adams; *Teachers' Institutes*, by Salem Town; *Methods of Teaching Geography*, by W. B. Fowle; *Vocal Music in Common Schools*, by A. A. Johnson; *Geography and History*, by George S. Hibbard; *Training of Students for the University*, by Prof. Porter, of Yale College; concluding Lecture by Henry Barnard, on *Schools in relation to other Educational Agencies of Cities*. Among the subjects discussed besides the topics of the lectures were *Methods of Teaching English Grammar*; *Ways and Methods of interesting Parents in the Schools where their children are taught*; *Organization of Schools for Cities and populous Villages*. This last topic was discussed by Nathan Bishop, Superintendent of Public Schools in Providence, W. B. Fowle of Boston, and Henry Barnard, and incidentally by Horace Mann, Cyrus Pierce, and others.

maintenance, and its apportionment on different classes of tax-payers; and the advantages which might reasonably be anticipated from such a school, from the admitted principles of school organization, and from the experience of other cities, were elaborately set forth in a pamphlet of sixteen pages,*—was prepared by me, and printed at the expense of Mr. Bunce. A copy of this document, together with the report of the majority of the committee, appointed at a public meeting of the Society held at the City Hall Jan. 7, 1847, drawn up by Rev. Dr. Burgess; and of the minority, in which the general principle is yielded, provided a union could be effected with the Grammar School—was left with every family of the Society five days before the adjourned meeting on the 8th of March, when the legal voters, in full force, decided by an overwhelming majority "to establish a Free High. School for instruction in the higher branches of an English, and the elementary branches of a classical, education, for all children, male and female, of suitable age and acquirements, in this Society who may wish to avail themselves of its advantages." This resolution, together with the first draft of two other resolutions, by which a committee was appointed with full power to purchase a site, and build and furnish a suitable house within the expense set forth in the pamphlet and report (the calculations for which I furnished), without the necessity of reporting to the Society until the work was done, and another committee was also appointed for to confer and arrange with the Trustees of the Grammar School for making the funds of the latter available for the support of the classical department, were prepared by me at the request of Dr. Burgess; who was also pleased to ask and receive suggestions from me in the preparation of his report before it was submitted to the committee of which he was chairman, or at least the organ for this purpose.

During the four weeks spent in Hartford in February and March, 1847, in assisting, in such ways as were open to me, the preparation of the public mind for the right action on the questions before the Society, I prepared and delivered a lecture before the Young Men's Institute on my old topic—"Our City, and Our Duties to its Past, Present, and Future Interests," in which I presented, under the first head, the claims of the Historical Society, which had recently come into possession of the library and collections of Dr. Robbins from my timely interposition in its behalf, and of a Rural Cemetery (by extending Zion Hill so as to embrace the old Wells Vineyard on the south to Washington street on the east), in which the present should be wedded to the past by ties of family affection, of artistic memorials of public service, and the near attraction of flowers and shrubbery, and a landscape of unsurpassed beauty in cultivated valley and wooded uplands in the distance. Under the second head, my favorite themes, of the institutions on the one hand which should prevent crime and poverty, dry up the sources of vice and demoralization, and at the same time develop to the fullest measure all the industrial resources which nature, science and art could command, by a liberal and comprehensive system of public education, were dwelt on; and as part of this system, a Public High School was not forgotten. Under the third head, my remarks were confined to suggesting

* The greater portion of this document has been republished in many forms, and more than 100,000 copies have been circulated in different States. The arguments for a public school of this grade have been frequently cited in support of similar movements elsewhere, and more than 30,000 copies of this portion were printed at the expense of Hon. James Wadsworth, of Genesee, N. Y., in an extra number of the District School Journal.

precautions "against any limitations in endowments and institutions designed to meet present and prospective wants, which experience has shown have a fatal tendency to prevent their adapting themselves or being adjusted to the changing and altered circumstances of a progressive age and country, like that in which it is our privilege to live.

There is yet no plethora of educational endowments, but the experience of this town and this State has already shown, that both religion and education, which are living interests, and should touch the conscience, heart, and habits of every living man and woman, may be hindered and not fostered by bequests and funds designed to foster them. The administration of a permanent fund for the poor may be so hampered as in the next generation to increase the class and the evil it was intended to relieve, and at the same time dry up in the community that charity which should be in every heart a well of living waters. Asylums for Orphans may be so managed, while they provide for the physical necessities of the children, as to leave their moral nature uneducated, which can be best trained in the daily discharge of those little offices of mutual help which the necessities of the family in its normal state require. Our State School Fund was for a time a great help in the impoverished condition of the people, and enabled the poorer districts to employ teachers for a longer period in the year, but it soon diminished, and finally destroyed, the habit of taxation. Our School Society and independent District organization, by bringing the administration of the schools nearer to the changing centers of population, undoubtedly for a short time operated favorably, but as constituted, they destroyed the principle of gradation. The transference of the bequests of Hopkins and others to a close, self-perpetuating corporation led to a more economical management as well as increase of the fund and its income, and may have kept alive the fires of classical learning which otherwise would have died out among us. But if the fund is to be administered only in the interest of a class, and that a small one; and of one sex, and that by no means the most essential in the civilization of a state; of certain professions, which though important are not the only important occupations for which special educational facilities should be provided; and for the culture of languages and literatures of peoples dead beyond all resurrection, to the exclusion of sciences which are creating new industries, and of languages of nations with which we have constant and constantly growing relations, and of literatures, of which to be ignorant, will be poorly compensated for by any amount of Greek and Latin in the original; then it is time, for the People,—the vast majority of families who have sons and daughters to be educated, who, as men and women, will make the Future into which we, city, State, and country, are fast entering—to establish schools of different grades, such as our fathers, acting in the spirit with which they ordained the code of 1650, would provide now, not only to exclude the barbarism of a single illiterate citizen, but to train all youth for the service of the country, for active usefulness and for domestic life. I speak as one proud of the State and city of my birth, but I am compelled to say, that in providing for the Future, in a well-adjusted system of public schools for children, rich and poor, and for all occupations and professions, we are behind—and far behind, and falling every day still further behind, the States of Massachusetts and Rhode Island, and the cities of Providence and Boston. In the vote soon to be taken, and with every prospect of a decision in favor of a Public High School, I trust Hartford will place her system on a higher and an ascending grade.

With that address and other local work, my coöperation in the efforts in which so many were glad to share, did not end. Within a few weeks I was called on to furnish the plan of a suitable building, and to name the places which a sub-committee, charged with this duty, could visit and examine the best buildings in which such schools as was designed here, were in actual operation; and still later, I was asked to suggest the names of teachers, with whom correspondence could be had, and, in November, 1847, "to come to Hartford once more to finish up the work."

Early in the morning of the first day of December, 1847, I left Providence for the fifth time in the service of the Public High School of Hartford, by the way of Worcester, to take my part in the dedicatory exercises of the building then just completed on the corner of Asylum and Ann streets. Owing to a detention of the cars at Springfield, I passed direct from the depot to the platform in the upper hall of the school, and with my head full of the jar and rumbling of the cars, opened and closed my address substantially as follows:*

Hopes long cherished although often deferred, and efforts earnestly and persistently put forth for many years by persons, some of whom are near me, and more, I trust, are in this crowded hall, have their fulfillment and reward in this occasion. This spacious, convenient, and attractive structure, inferior to no other of its grade in New England in the essential features of a good school-house, and superior to any other within my knowledge, for its cost, is unique in the history of public buildings for the unpaid or self-paid services of the committee, from their careful study of the best models before and after the specifications were drawn, and their firm determination to have the material provided, and the work done in the best manner, according to contract, under their daily supervision, and within the amount appropriated by the Society, even if the furniture and equipment of apparatus should be paid for by themselves. For this unprecedented liberality, personal interest, and fidelity in the discharge of a public trust, they have received the formal and recorded thanks of the Society, and entitled themselves to the lasting gratitude of the teachers and pupils who will in successive years enter into the enjoyment of their sacrifices.

Within these walls, now consecrated with ascriptions of praise and thanksgiving to Him who planted this vineyard in the wilderness, and inspired the hearts of our fathers to ordain "institutions of good learning," as well as of elementary knowledge, and provide "for the breeding up of hopeful youth both at the grammar school and the college, for the public service of the country in future times," and "for a life of active usefulness," is to be solved not only for this community, but to some extent, for the whole country, the problem of higher education. I say deliberately, for the whole country, for if the efforts which have been put forth here, and which the deep conviction of the same necessity has caused to be put forth in other States, fail to incorporate this feature into our system of common schools, then will higher education—every thing beyond the merest rudiments, pass into the irrevocable keeping of religious bodies, and adventure schools, over which the public will exercise no control, and parents can have no guarantee of the value of the education their children will receive. Associated with this growing antagonism of a rival system, which every ecclesiastical organization will adopt in self-defence, the public school will suffer from the withdrawal of all children destined for, what are wrongfully, if exclusively named, the learned professions, or the occupations of society which require trained intellects and systematized and special knowledge, and finally degenerate into elementary schools of the lowest sort. There can not be—there never has been—an efficient system of primary instruction whose teachers and officers were not supplied from public institutions of a higher grade.

The course of instruction which is here provided for the physical, intellectual, and moral training of the pupils, resting on the solid basis of thorough systematic teaching in the schools below, which its plan of admission by open examination in certain specified requirements will help to secure, and the want of which in any of the lower schools will be sure to be exposed, in the failure of its candidates to gain admission here,—and rising and spreading out into all

* From notes recently recovered, on which is indorsed "Used at the dedication of the Public High School at Hartford Dec. 1, 1847, and at the opening of the Free Academy at Norwich in 1856. Both of these institutions originated in the legislation of 1838, and the agitation of questions of educational reform, which followed." These notes were written out for publication, and may have been printed with an account of the proceedings at the dedication of the first building, of which, if printed, I have no copy.

of those studies which in one direction take hold of all the occupations of society, the farm, the workshop, the counting-room, the deck, the home, and on the other, discipline and inform the mind, and fit it for the acquisition and retention of all sound learning, and for the perception and assimilation of truth and beauty in all the works of God, as unfolded in our colleges and still higher seminaries—such a course of study seems to me eminently judicious. It meets the demands of our age for an education in science which shall make the wind and the stream, and the still more subtle agents of nature, minister to our material wants, and stimulates in all directions, the inventive faculties of man, by which mere muscular toil can be abridged, and made more effective. At the same time it does not ignore those apparently less practical studies, especially the mathematics and classics, which the gathered experience of successive generations of teachers, and the profoundest study of the requirements of the mind of youth, and the disciplinary and informing capabilities of different kinds of knowledge, have settled to be the best, although not, as I hold, the only basis of a truly liberal scheme of general or professional education. I do not believe that any amount of applied science, and the largest amount practicable should be given in this and other institutions of higher learning, or that any attention which may be bestowed on the English language only,—and whatever else is taught or omitted, the English language and literature should ever hold a prominent, the prominent place in the actual aims and results of your scheme of study,—can ever train the three great faculties of reason, memory, and imagination, to their full, natural, and harmonious development. But while I hold this not hastily formed opinion, I see no reason why the instruction of our schools, from the oral or primary, up to the university, should not deal with common things, with the principles, the phenomena and duties of every-day life;—why sewing, and a practical knowledge of domestic economy should not find a place somewhere in the training of every girl; and a “round about common sense,” the power of applying the mind and the hands readily to all sorts of work in helping himself and other people, about the house, the shop, or the farm, be the result of the house and school training of every boy. This was, and still is to some extent, the glory of our best New England school and domestic education. And to all this should now be added the modern developments of science in their applications to all our great national industries.

One of the great advantages of the Public High School to this community, in connection with the reorganization and improved teaching of the schools below, is the opportunity it affords of the highest advantages of public education,—the free struggle of children and youth of the same age, of both sexes, and of every condition, for the mastery of the same knowledge, and the acquisition of the same mental habits, in the same class-rooms, under accomplished teachers,—with the protection of parental vigilance at home, and that education of the heart and the hand which comes from the constant exercise of mutual help and courtesy, from innocent sports and rambles, and the practice of household and rural industry. These advantages of home and school education, are in the plans of this institution, extended to the female sex. My hopes for the regeneration of society, and especially for the infusion of a more refined culture in manners and morals, into the family and the school, rest on the influence of pious and educated women as mothers and teachers; and in the appropriate training of such women, this school will become an important instrumentality.

You need not be told, that an institution of learning can not flourish in this country, if removed from the sympathy and coöperation of the people whose educational wants it is designed to supply. But to make that sympathy warm, and that coöperation liberal and effective, the result of your work here must be seen and felt. This community must, as rapidly as successive classes can be taught and graduated, see the fruits of their expenditures in the merchants, foremen of shops, leaders of industries and professions, men and women in every walk of life, who have grown up under the better instruction and influences of this school. The schools below must gradually be brought up to a higher uniform standard of scholarship than they have yet reached. Unless these results are realized, the promises, founded on the experience of similar institutions and systems elsewhere, will be falsified, and the withdrawal of public

favor will inevitably follow. But I have no misgiving as to the future—it rises bright and glorious before me, and on its forehead is the morning star—the herald of a brighter day than our schools have yet seen. That enthusiasm which started this enterprise on the 8th of March on the flood tide of popular favor, will carry your committees and teachers on until you have time enough to put your institution on to a well digested course of study, which you will from time to time modify and adjust to the educational wants of the people, whom your own work here will help to train to a higher and higher standard. With this wise adjustment of your course of instruction so as to impart the best preparation which the diversified professions and occupations of the community require, this High School will stand a monument of wise liberality and large public spirit, a measure of the progress of intelligence slowly but surely diffused over honest convictions firmly held because embedded in the habits of a half century of opposite practice, a shrine at whose altar-fire many ingenuous minds will be kindled with the true love of science, a fountain of living waters whose branching streams will flow on with ever deepening and widening current, which will bear on its bosom noble argosies, and nourish all along its banks, trees, whose leaves will be for the healing of the nations.

I have thus noted rapidly, but not briefly as you desired in your letter, the chief, although not all the efforts to establish in the First School Society of Hartford, a Public School of a grade higher than the District Schools, so far as I was personally conversant with the same, from the first formal announcement of the subject in the Center Church on the evening of July 4, 1838, to the dedication of the building erected for its accommodation on the 1st of December, 1847. You will please receive this communication, long as it is, as a contribution only to the history of the English and Classical High School of the Town of Hartford, for which other citizens labored, if not so long, with equal earnestness and with more ability. The names of several, from their connection with committees, reports, and speeches, have been incidentally introduced, and before the final record is made up (which should in my judgment include the history of the bequests of Edward Hopkins and other benefactors, and as far as practicable, the teachers of the old Town Grammar, and County Free Schools, of which the institution over which you preside, is the lineal descendant and legal representative), the names of others, with their special work by voice or pen, or personal influence, should be appropriately noticed—although the growth of a public institution, whose establishment involves a radical change in public opinion and the habits of families, and the imposition for the first time, or a large increase of property taxation, is the sum total of innumerable contributions made at different times, of which some of the most important may never be recorded,* and the names of their authors not even be known, or have been purposely concealed. Such laborers, in obscure or conspicuous portions of the field, find their true inspiration and reward in the ever extending results of educational efforts wisely put forth. No human eye can follow, no human hand record, the influences which go out from one, much less from many,

* The fact of being appointed to preside over a public meeting, or to serve on a committee to inquire into the expediency of a proposed measure, is no evidence that the persons so appointed are in favor of the same, or join in the final recommendation. Thus the presiding officer of the meeting on the 11th of January, 1847, and two of the members of the committee appointed to consider and report on the expediency and expense of a school of a higher grade than the District Schools, spoke and voted against the resolution to establish a Free High School on the 8th of March following. So of other members of this and other committees—several were put on more from their relations to local or political interests, and from confidence in their character for intelligence and fairness generally, than from having taken any active part in previous discussions.

institutions of learning thus established or improved—from even one intellect, otherwise dead as the clod of the valley, or fickle as the wave, made strong by its teaching to discover and defend the truth in some hour of popular delusion, or one heart inspired with love to God and man to work on in some forlorn cause of human suffering and calamity, like Todd, or Gallaudet, or Wells, until the mute can speak, the insane be clothed again in their right mind, and the mangled victims of disaster and the battle-field be treated without pain.

In conclusion, let me say, while at no period of our history has the original school policy of the State, in providing a higher as well as an elementary grade, been so generally realized as in our District Graded and Town High Schools; or the obligation on the Town of Hartford to discharge the trust, assumed in accepting the early bequests made for the specific purpose of maintaining a school of the higher grade, been so fully discharged as in its provision for our English and Classical High School—there is not only room, but urgent necessity, for still further development of the system in the State generally, and in its local administration and application here. Our town organization of schools is still fragmentary and disjointed; the opportunities of even elementary instruction are very unequally distributed; the actual attendance, any day in the year, of children of the teachable age in public schools of every grade is about one-half of the whole number enumerated (only 3,720 out of 7,834); the management and inspection of our schools in reference to securing the highest uniform excellence throughout all public schools of every grade, in the most economical and productive results of the large sums collected by taxation for school purposes, through ten independent committees, if applied to any private enterprise involving the same number of persons, the same capital, and the same expenditure, would be deemed loose and ruinous; the subjects and courses of study, although very numerous and carefully prepared, need both reduction in some directions and enlargement in others, and such practical readjustment throughout as will make systematic instruction in music, drawing, and gymnastics universal, and give our future machinists, engineers, builders, mechanics and chemical technologists as well as merchants, teachers, and aspirants of regular professions of every name and both sexes, that practical knowledge of the sciences which is essential to the highest and earliest success in every occupation.

With my best thanks, as a citizen, to you for your judicious and faithful work as the teacher of our highest school, and for your eminent success in so administering your delicate and difficult office of principal as to harmonize and consolidate two institutions which might under other auspices have proved hostile and mutually injurious; and, to your immediate associates, and fellow-laborers generally, who together now make the liberality of the State, the town, and of benevolent and public-spirited individuals (amounting in 1869 and 1870 to \$272,352 for all objects), accomplish the noble purposes for which our public schools were originally instituted, more broadly and thoroughly than at any period of our history since John Higginson taught the first school in Hartford in 1637,

I remain your obedient servant and friend,

HENRY BARNARD.

HARTFORD, *January 14, 1871.*

NOTES TO THE HISTORY OF GRAMMAR SCHOOLS.

The Earliest School in Hartford.

The first mention of "the school" in the records of Hartford is in 1642, where the townsmen make provision for it, in the way of endowment, not as an institution established then for the first time, but already in existence, and part of the public polity, like roads, protection from fire, the Indians, and worship. Since writing in 1853 the first edition of the *History of Common Schools in Connecticut*, in which I state from good authority that the town and State legislation only embodied the practice which the founders of Hartford, from their personal antecedents, their own education in grammar and free schools, and the moral necessity on such men with children to be educated and trained in the admonition of the Lord, had commenced from their first settlement here. Hooker and Stone were both teachers, and under their instruction began, so far as I can now recall, the first school of the prophets—the first formal theological seminary in the country. Their first students in theology were very naturally the first teachers of the children of their own preceptors and neighbors, and we know from Cotton Mather, that John Higginson, before we hear of him as chaplain at the fort at Saybrook (in 1640), and minister in Guilford, was "a schoolmaster at Hartford," and resided here with his widowed mother—his name and others appearing on the records from 1636 to 1639. If he taught at all, the school and teaching would resemble the schools in which he and the fathers of the children were taught (the grammar and free schools of England), and the teachers would come within the category of masters, themselves educated men "able to instruct youths so far as they may be fitted for the University." Mather compares Higginson, who had the support of his mother and her children to provide for, to Origen, "who after the untimely death of his father, had his poor mother with six other children to look after; whereupon he taught first a *grammar school* and then betook himself unto the study of divinity; thus this other (son of Francis) Higginson, after a pious childhood, having been a schoolmaster at Hartford and minister at Saybrook, &c., &c." We find that the school at Hartford was good enough to satisfy the Rev. Thomas Shepard, of Cambridge (the seat of a grammar school and the infant University), whose son "little Sam" was here in the family of his grandfather Hooker at a little later date.

Will and Bequests of Governor Hopkins.

The Will of Gov. Hopkins, dated London, March 17, 1657, with an account of the Town Grammar Schools, and the County Free Schools, established under the acts of 1650, and 1672, towards each of which the General Court appropriated six hundred acres of land, and in 1680 to two of them, the one at Hartford, and the other at New Haven, "the school revenue given by particular persons, or to be given for this use so far as it will extend," together with a sketch of the institutions at Hartford, New Haven, and Hadley, which in their inception and early history were greatly aided by his bequests, will be found in the "*History of the Common Schools of Connecticut*."

The following paragraphs of the Will contain all that refers to the subject:

"And the residue of my estate there, [in New England], I do hereby give and bequeath to my father, Theophilus Eaton, Esq., Mr. John Davenport, Mr. John Cullick and Mr. William Goodwin, in full assurance of their trust and faithfulness in disposing of it according to the true intent and purpose of me the said Edward Hopkins, which is to give some encouragement in those

foreign plantations for the breeding up of hopeful youths both at the grammar school and college, for the public service of the country in future times."

"My farther mind and will is, that within six months after the decease of my wife, five hundred pounds be made over into New England, according to the advice of my loving friends, Major Robert Thomson and Mr. Francis Willoughby, and conveyed into the hands of the trustees before-mentioned in further prosecution of the aforesaid public ends, which, in the simplicity of my heart, are for the upholding and promoting the kingdom of the Lord Jesus Christ in those distant parts of the earth."

Bequests of Gibbins, Richards, and Talcott.

The following letter from Charles Hoadly, Esq., State Librarian, mentions several additional bequests and confirms the statement made above:

HARTFORD, January 9th, 1871.

DEAR SIR: You ask me whether I can give any items, relative to the legacy for educational purposes by William Gibbons (or Gibbins, as he himself spelled his name), in addition to what is stated in the note at the foot of page 31 of Vol. IV. Colonial Records of Connecticut.

The will of Mr. Gibbins is dated February 26, 1654 [*i. e.*, 1655]. The following is a copy of one clause of it: "I give my land at Peniwise now in the tenor of John Sadler towards the mayntenance of a Lattin schoole at Hartford; provided that the fence bee continued in the same line and way of common fencing as that now is. And for the present, until the lease I have made to John Sadler be expired, I give out of the rent due from John Sadler fifty shilling yearly."

Mr. Gibbins' inventory, taken Dec. 2, 1655, amounted to about £1500. The house built a few years since for his dwelling by Edmund G. Howe, near the Cove in Wethersfield, stands upon a part of the land devised to the Hartford school by Mr. Gibbins. I mentioned in the note above referred to, that pursuant to a vote of the town in 1756, this land, which was about thirty acres of meadow and upland, was let on a long lease. The original lease, signed by the committee for the school, is among the papers of the Conn. Historical Society.

James Richards, Esq., who married Sarah, daughter of William Gibbins, by his last will, made in 1680, left fifty pounds to the Latin School in Hartford.

As for the bequest of Mr. John Talcott, the grandfather of Governor Joseph Talcott: his will was made August 12th, 1659, and he says in it, "I give towards the maintaining a Lattin schoole at Hartford, if any be kept here, five pounds," which was to be paid one year after his death.

You ask me also when the town of Hartford came into possession of the six hundred acres of land which was granted by the General Court May 9th, 1672, to Hartford, "for the benefit of a grammar schoole."

It was not until May 30th, 1718, that this land was laid out, "about half a mile southward of the colony line at the north end, and extending southward and eastward as far as may be needful, butting west on Enfield bounds." The land lay in the town of Stafford. In 1776 it was described as "rough and wild," and, in June of that year, the General Assembly, upon the petition of the then committee for the school, authorized them to make sale of this land.

You are undoubtedly correct in your statement that there was a school in Hartford prior to the vote of 1642, by which "thirty pounds a year shall be settled on the school for ever"—and in fixing on 1637 as the year in which John Higginson, in unconscious imitation, as Cotton Mather makes out, of Origen, who taught a grammar school at Alexandria, was a schoolmaster here, and our records show, a land-owner. You might have cited Winthrop, who speaks of "one Mr. Collins, a young scholar who came from Barbadoes and had been a preacher, who was entertained at Hartford to teach a school in 1640." The qualifications of such teachers as these, and their successor William Andrews, in whose beautiful handwriting the proceedings of the Commissioners of the United Colonies are recorded from 1643 to 1649, would come within the requirements of the school law of 1650, for such grammar schools as the Town of Hartford was ordered to set up. You will recollect (see your own History), that Hartford in the first eight years of the existence of the Collego, contributed more than one-third as much as the citizens of Boston towards the maintenance of scholars at Cambridge.

Truly yours,

CHARLES J. HOADLY.

HON. HENRY BARNARD, LL. D.

MR. CAPRON: Since sending you my "Contribution to the History of the Public High School" so far as I was personally mixed up with the same, and "with subjects adjacent thereto" from 1838 to 1848, it has occurred to me, in passing the site of the structure erected for its accommodation in 1847, and which it cost so many years of agitation to evoke from the hearts of the taxpayers of the First School Society, and of which not one stone or brick now remains in the solid and orderly proportions in which, with ascriptions of thanksgiving and songs of praise, and invocations of the Divine blessing, they were "dedicated to the cause of good learning and the breeding up of hopeful youth for the public service of the country, and a life of active employment," that you and your associates in the work of instruction, and all the living graduates, might be glad to have some memorial of the building in its external appearance and internal arrangements, as they were engraved for my School Architecture in 1848. Those plates are at your service; and with them I send a wood-cut of a plan drawn in 1828 by I. Spencer Jr. (now in the possession of William Hamersley), of a portion of "South Side," in which may be seen its predecessor erected in 1828 still standing on Linden Place (then Wells Alley), and the spacious lot, on which lawyers, doctors, clergymen, governors, and senators, then boys in their teens, kicked foot-ball with commendable vigor. H. B.



STREETS—(1) Main; (2) Linden Place, originally a Lane leading to House erected by Thomas Y. Seymour, and afterwards occupied by Doctor Sylvester Wells, and known in his day as *Wells-Alley*; (3) College street as projected after burning of Whitman mansion in 1837; (4) Buckingham street before it was straightened, and the west end made part of College street in 1838; (5) Buckingham after the completion of the new (M) and removal of (N) old South Meeting House; (6) Whitman Court, laid out by I. Spencer, Jr., purchaser of the Whitman estate (see map); A. GRAMMAR SCHOOL HOUSE (still standing as a double tenement), erected in 1828, just north of its predecessor, which was erected in 1808 (and bought and removed by D. Crowell to lot (k) corner of Whitman Court), in place of school-house which stood on north side of Arch street, midway between Main and Prospect street, bought for this purpose in 1755; (h) John Ems; (c) Enoch Perkins; (d) John M. Niles; (f) Asa Francis, with carriage-shop on lot (g) (house occupied by George Francis); (a) C. Bull; (i) Rums house; (l) Dr. Wells.

PLANS AND DESCRIPTION OF THE PUBLIC HIGH SCHOOL-HOUSE,
HARTFORD, CONN.

The Public High School-House of Hartford was built after more than ordinary search for the best plan, (a committee having visited Boston, Lowell, Salem, Newburyport, Worcester, Providence, and Middletown, for this purpose,) under the constant oversight of a prudent, practical and intelligent building committee, and with due regard to a wise economy. The committee were limited in their expenditure for lot, building, and fixtures, to \$12,000; and when it was ascertained that a suitable building could not be constructed for that sum, individuals on the committee immediately contributed \$2,400 out of their own pockets to complete the house with the latest improvements. The committee have now the satisfaction of knowing that their contributions and personal oversight have been mainly instrumental in erecting and furnishing the most complete structure of the kind in New England, when the aggregate cost is taken into consideration.

The High School is designed for both males and females, and the arrangements of the buildings, and the grounds, are made with reference to the separation of the sexes, so far as this is desirable in the same school.

The lot on which the building stands is at the corner of Asylum and Ann streets, and is at once central, and large enough for the appropriate yards. The yards are separated by a close and substantial board fence, and the grounds are well laid out and properly inclosed; they will also soon be planted with trees and shrubbery. The building is of brick, three stories high, upon a firm stone basement. Its dimensions are 50 by 75 feet. The basement is 13 feet in the clear, six feet of which are above the level of the yard. This part of the building is occupied by furnaces, coal bins, sinks, pumps, entrance rooms, &c. At one end, and on two opposite sides of the building, a stair case eleven feet in width extends from each of the two entrance rooms, to the upper story, with spacious landings on the first and second floors. Two rooms, each 11 by 14 feet, are between the stair cases, the one on the first floor being used for a front entry to the building, and the one on the second floor being appropriated to the Library and Apparatus. Two closets, eleven by four feet on the first floor, and immediately beneath the stair cases, receive the outer garments, umbrellas, &c., of the teachers.

An aisle of four feet four inches in width extends between the desks and outer walls of the rooms, and between every two ranges of desks is an aisle of two feet four inches in width. An aisle of eight feet in width passes through the middle of the rooms, parallel to the narrower passages. A space of five feet in width is likewise reserved between the remote seats in the ranges and the partition wall of the rooms. Around the sides of the rooms, tastefully constructed settees are placed for occasional recitations, and for the accommodation of visitors, and in the upper room for the use of the pupils of the room below, during the opening and closing exercises of the school.

The pupils, when seated, face the teachers' desks and platforms, which occupy the space between the entrance doors of each room.

A blackboard, or black plaster surface, forty feet long, and five broad, extends between the doors leading to the recitation rooms, which are also lined with a continuous blackboard. There is also a blackboard extending the entire length of the teachers' platform in the lower room, and two of smaller dimensions in the room above, a part of the space being occupied by the folding doors leading to the library and apparatus room. Twenty chairs, of small dimensions and sixteen inches in height, are placed around each recitation room, thirteen inches apart and seven inches from the walls, and securely fastened to the floor. A clock, with a circular gilt frame and eighteen-inch dial plate, is

placed over the teachers' platform in each school room, in full view of the pupils. A small bell is also placed above the teachers' platform in the lower room, with a wire attached, passing to the desk of the Principal, in the room above, by which the time of recesses, change of recitation classes, &c., are signified to the members of the lower rooms.

The school-rooms in the first and second stories are 50 feet square, and 13 feet in height—to each of which, two recitation rooms 12 by 23 feet are attached. The large rooms are furnished with "Kimball's improved School Chairs and Desks," placed in six ranges, extending back from the teachers' platforms, ten desks forming a range, and two chairs attached to each desk, furnishing accommodations in each room for 120 pupils—60 of either sex. Ample room yet remains in front of these ranges to increase the number of desks when the wants of the school demand them. The desks are four feet in length and one foot four inches in breadth, constructed of cherry, oiled and varnished. The moderately inclined tops are *fixed* to the end supporters, and the openings for books are in front of the pupils. Glass inkstands are inserted in the tops of the desks, and the ink protected from dust and the action of the atmosphere by mahogany covers turning on pivots. The chairs are constructed with seats of basswood, hollowed, and backs of cherry, moulded both to add beauty to the form of the chair, and to afford support and comfort to the occupants. All are neatly stained and varnished, and they, as well as the desks, rest on iron supporters, firmly screwed to the floor.

The entire upper story is converted into a hall, being twelve feet in height at the walls, rising thence in an arch to the height of seventeen feet. This is appropriated to reading, and declamation, and for the female department of the school, to daily recess, and calisthenic exercises. A moderately raised platform is located at one end, above which an extended blackboard is placed, and settees are ranged around the walls; these, properly arranged, together with the settees from the lower rooms, which are easily transported above, speedily convert the open *Hall* into a commodious Lecture room,—and also adapt it to the purposes of public examinations and exhibitions.

In each of the two entrance rooms are placed the means of cleanliness and comfort,—a pump of the most approved construction, an ample sink, two wash basins with towels, glass drinking tumblers, and a looking-glass. Ranges of hooks for hats, coats, bonnets, cloaks, &c., extend around the rooms, and are numbered to correspond with the number of pupils, of each sex, which the capacity of the house will accommodate. In the girls' room, pairs of small iron hooks are placed directly beneath the bonnet hooks, and twelve inches from the floor, for holding the over-shoes. In the boys' room, boot-jacks are provided to facilitate the exchange of boots for slippers when they enter the building—an important article, and of which no one in this department of the school is destitute. A thin plank, moderately inclined by hollowing the upper side, is placed upon the floor, and extends around the walls of the room, to receive the boots and convey the melted ice and snow from them, by a pipe, beneath the floor. A large umbrella stand is furnished in each of the two entrance rooms, also with pipes for conveying away the water. Stools are secured to the floors for convenience in exchanging boots, shoes, &c. Directly under the stairs is an *OMNIVM GATHERUM*—an appropriate vessel, in which are carefully deposited shreds of paper, and whatever comes under the denomination of *litter*, subject, of course, to frequent removal. These rooms, in common with the others, are carefully warmed. The wainscoting of the entrance rooms, and the stair case, is formed of narrow boards, grooved and tongued, placed perpendicularly, and crowned with a simple moulding. The railing of the stair case is of black walnut. A paneled wainscoting reaching from the floor to the base of the windows, extends around the walls of the remaining rooms. All the wood work, including the library and apparatus cases, is neatly painted, oak-grained, and varnished. The teachers' tables are made of cherry, eight feet in length, and two feet four inches in breadth, with three drawers in each, and are supported on eight legs. A movable writing desk of the same material is placed on each. Immediately in front of the teachers' desk in the upper room, a piano is to be placed, for use during the opening and closing exercises of the school, and for the use of the young ladies during the recesses. Venetian window blinds with rolling slats, are placed inside the windows, and being of a slight buff color, they modify the light without imparting a sombre hue to the room.

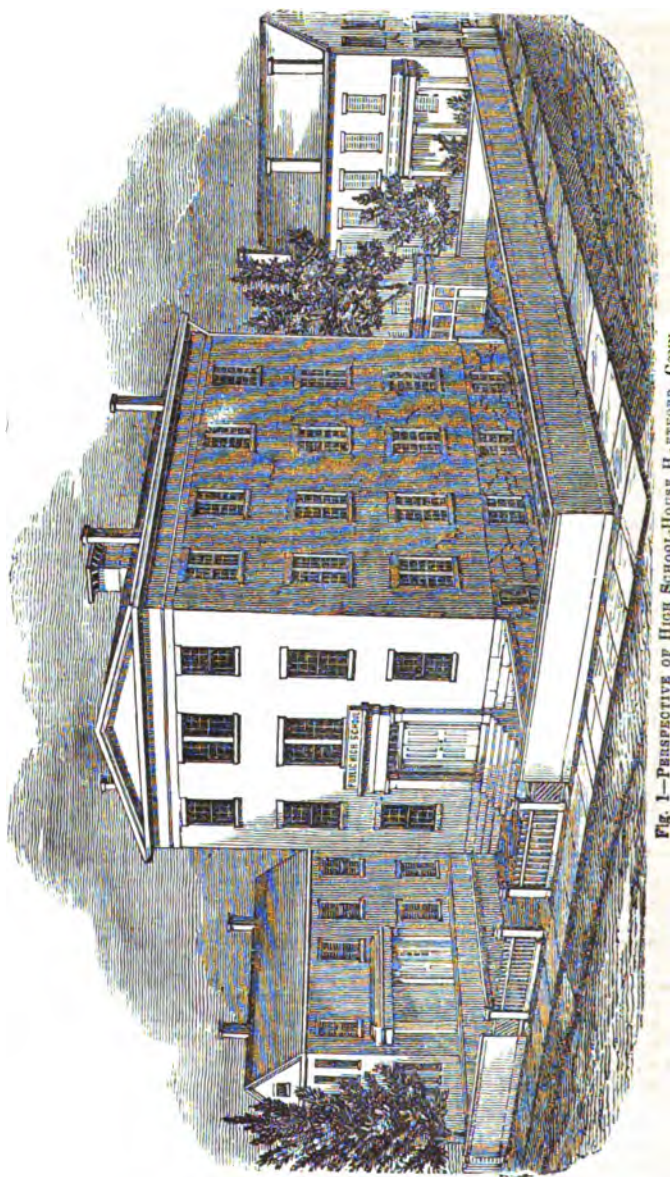
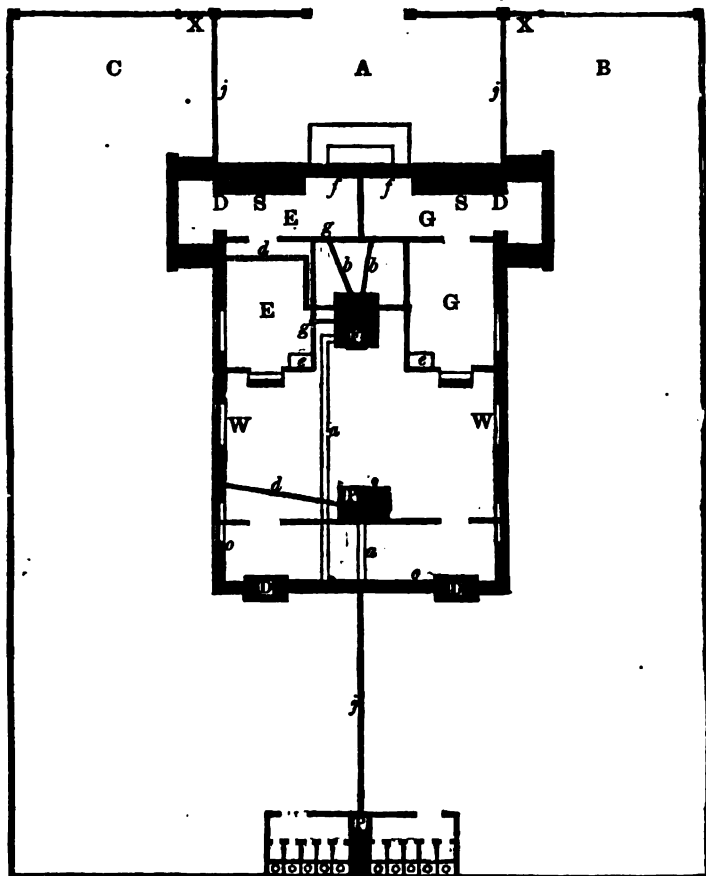


FIG. 1.—PERSPECTIVE OF HIGH SCHOOL HOUSE, HARTFORD, CONN.

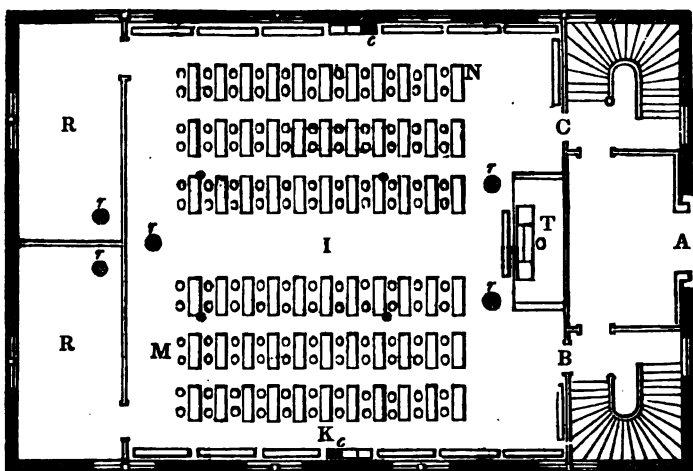
Fig. 2—GROUND PLAN, YARD, BASEMENT, &c.



A—Front yard.
 B—Girls' yard.
 C—Boys' yard.
 D—Door.
 E—Boys' entrance rooms.
 G—Girls' entrance rooms.
 F—Furnace.
 S—Stairs.
 W—Windows.
 P—Privies, with screen, doors, &c.
 X—Gates.

a—Cold air ducts.
 b—Warm air ducts.
 c—Foul air ducts or ventilating flues.
 d—Smoke pipe.
 e—Pump, sink.
 f—Umbrella stand.
 g—Hollowed plank to receive wet boots, overshoes, &c.
 o—Bins for hard coal, charcoal, &c.
 j—Close board fence.

Fig. 3—PLAN OF FIRST FLOOR.



- A—Front entrance.
 B—Girls' entrance.
 C—Boys' entrance.
 I—Centre aisle, eight feet.
 L—Aisle between each range of seats and desks, two feet four inches.
 K—Side aisle, four feet four inches.
 M—Space five feet wide.
 T—Teachers' platform and desk.
 R—Recitation rooms, each twenty-three feet by twelve, furnished with twenty chairs, seven inches from the wall and thirteen inches apart.
 Q—Library and apparatus, from eleven feet by fourteen feet.
 N—Kimball's desk and two chairs.
 O—Piano.
 r—Hot air registers.
 c—Ventilating flue or foul air duct. N—Settees.

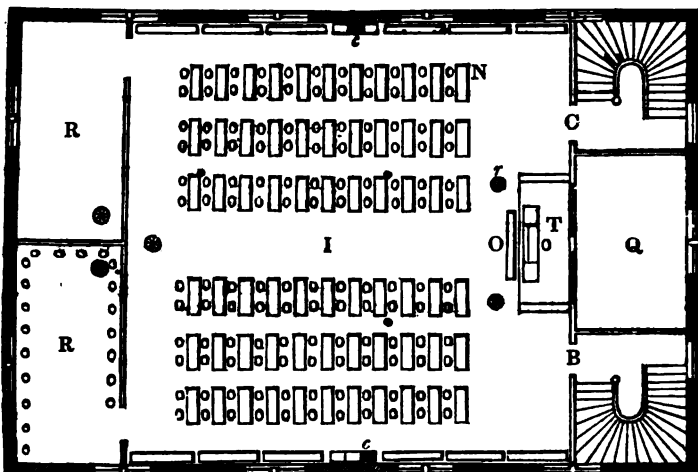


Fig. 4—PLAN OF SECOND FLOOR.

Figs. 5 and 6. PLANS EXHIBITING MODE OF VENTILATION.

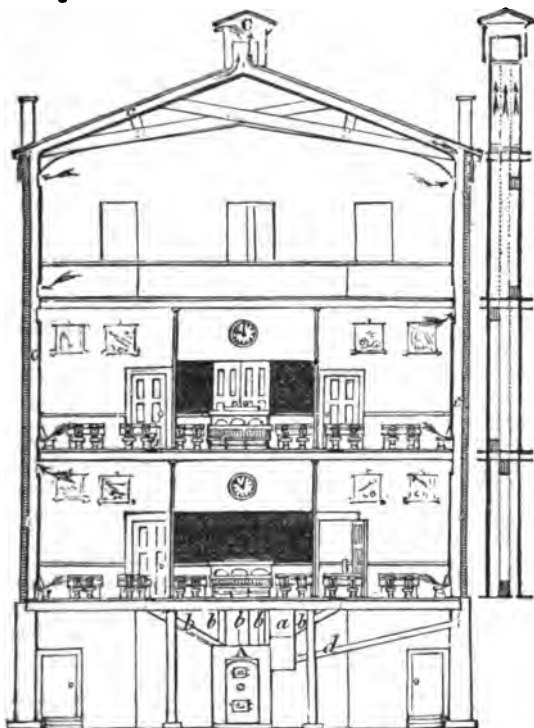


Fig. 5. Transverse section exhibiting the manner in which the ventiducts or hot air flues are carried up on the inside of the walls, under the roof, till they discharge into the Stationary Top or Ejector.

Fig. 6. Lateral section of the ventiducts or foul air flues, showing the manner in which the flues are packed together and carried up separately from the floor of each room until they discharge into the common Ejector. The cut does not represent properly the manner in which the flues are carried under and out of the roof.

Fig. 3.



Each desk is fitted up with a glass ink-well (Fig. 2,) set firmly into the desk, and covered with a lid. The ink-well may be set into a cast iron box (Fig. 3,) having a cover; the box being let in and screwed to the desk, and the ink-well being removable for convenience in filling, cleaning, and emptying in cold weather.

Fig. 2.



THE PUBLIC HIGH SCHOOL HOUSE of the First School Society, situated on the corner of Asylum and Ann streets, was dedicated with appropriate religious and literary exercises on the 1st of December, 1847, "to the cause of good learning," "to the breeding up of hopeful youth for the public service of the country in present and future times," and "for a life of active employment," as were duly set forth in the statutes requiring of such towns as Hartford the setting up of a Grammar School, "the master whereof being able to instruct youths so far as they may be fitted for the university;" in the bequests of Edward Hopkins and others; and the Act incorporating the Trustees of the Grammar School, which is now practically merged in the High School.

The following is the Programme of the Dedicatory Exercises:—

I. READING SELECT PORTIONS
OF SCRIPTURE.

BY REV. A. C. COXE.

II. MUSIC.

Directed by Mr. Barnett.

Original Hymn by Mrs. Sigourney.

The pilgrim fathers,—where are they,
Who broke this stranger clod?
And patient taught a new-born world
To lisp the name of God?

Where are the hunters, swift of foot
The bounding deer to trace,
And stay the sunward eagle's flight?
Where is that red-browed race?

Not here! Not here! But in their place
Behold a favor'd train;
Who, nurtur'd 'mid these verdant vales
Where peace and plenty reign.

Amid the ashes of their sires
Do consecrate this day,
A dome their unborn sons shall hail
When they are cold in clay.

III. PRAYER.

BY REV. JOEL HAWES, D. D.

IV. ADDRESS.

BY HENRY BARNARD.

V. MUSIC.

Original Hymn by Mrs. Sigourney.

If thou a wreath hast twin'd,
Or gathered glittering gold,—
Thy hidden horde the thief may find,
A blight thy buds unfold.

But there's a flower that fears
No adverse season's strife,
And still its living fragrance cheers
The wintry eve of life;

And there's a gem that foils
The robber's searching eye,
Enshrined within the mind that toils
For immortality.

Oh ye, whose brows are bright,
Whose young hearts feel no thorn,
Seek knowledge, by the rosy light
Of life's unfolding morn,

With ardor uncontrolled
Seek wisdom's love divine,
And win the garland, and the gold
That can not fade with time.

VI. ADDRESSES:

REV. H. BUSHNELL; REV. J. HARRINGTON;
REV. W. CLARK; REV. DR. HAWES.

VII. MUSIC.

Original Hymn by Mrs. Sigourney.

In vain the builder's toil,
In vain the watchman's care,
To guard this home to science dear
In strength and beauty fair;
Unless God's spirit deign
To light the altar's flame,
And aid the teacher and the taught
To sanctify His name.

Oh, may He deign to bless
The streams that here shall flow,
The seeds that in its mold are cast
The blossoms here to blow,—
And make these cherished walls
Even to remotest days,
Throughout our nation's utmost bound,
A glory and a praise.

VIII. BENEDICTION.

BY REV. THOMAS ROBBINS, D. D.

PUBLIC HIGH SCHOOL.

In the preceding pages we have presented a variety of plans for the construction and internal arrangements of buildings designed and erected for Public High Schools. Whenever and wherever the interest of the community can be sufficiently awakened to call for a public school of the grade generally understood by the term High School, there will be no difficulty in raising the funds necessary to erect and furnish a suitable edifice for the accommodation of the school. It may not, then, be amiss in this place to present a few considerations and facts bearing upon the establishment of a school of this grade in every large village and city in our country.

By a Public or Common High School, is intended a public or common school for the older and more advanced scholars of the community in which the same is located, in a course of instruction adapted to their age, and intellectual and moral wants, and, to some extent, to their future pursuits in life. It is common or public in the same sense in which the district school, or any lower grade of school established and supported under a general law and for the public benefit, is common or public. It is open to all the children of the community to which the school belongs, under such regulations as to age, attainments, &c., as the good of the institution may require, or the community may adopt. A Public High School is not necessarily a free school. It may be supported by a fund, a public tax, or an assessment or rate of tuition per scholar, or by a combination of all, or any two of these modes. Much less is it a public or common school in the sense of being cheap, inferior, ordinary. To be truly a public school, a High School must embrace in its course of instruction studies which can be more profitably pursued there than in public schools of a lower grade, or which gather their pupils from a more circumscribed territory, and as profitably as in any private school of the same pretensions. It must make a good education common in the highest and best sense of the word common—common because it is good enough for the best, and cheap enough for the poorest family in the community. It would be a mockery of the idea of such a school, to call it a Public High School, if the course of instruction pursued in it is not higher and better than can be got in public schools of a lower grade, or if it does not meet the wants of the wealthiest and best educated families, or, if the course of instruction is liberal and thorough, and at the same time the worthy and talented child of a poor family is shut out from its privileges by a high rate of tuition. The school, to be common practically, must be both cheap and good. To be cheap, its support must be provided for wholly or mainly out of a fund, or by public tax. And to justify the imposition of a public tax, the advantages of such a school must accrue to the whole community. It must be shown to be a common benefit, a common interest, which cannot be secured so well, or at

all, except through the medium of taxation. What, then, are the advantages which may reasonably be anticipated from the establishment of a Public High School, properly organized, instructed, and supervised?

First. Every thing which is now done in the several district schools, and schools of lower grade, can be better done, and in a shorter time, because the teachers will be relieved from the necessity of devoting the time and attention now required by few of the older and more advanced pupils, and can bestow all their time and attention upon the preparatory studies and younger children. These studies will be taught in methods suited to the age and attainments of the pupils. A right beginning can thus be made in the lower schools, in giving a thorough practical knowledge of elementary principles, and in the formation of correct mental and moral habits, which are indispensable to all sound education. All this will be done under the additional stimulus of being early and thoroughly fitted for the High School.

Second. A High School will give completeness to the system of public instruction which may be in operation. It will make suitable provision for the older and more advanced pupils of both sexes, and will admit of the methods of instruction and discipline which cannot be profitably introduced into the schools below. The lower grade of schools—those which are established for young children,—require a large use of oral and simultaneous methods, and a frequent change of place and position on the part of the pupils. The higher branches, especially all mathematical subjects, require patient application and habits of abstraction on the part of the older pupils, which can with difficulty, if at all, be attained by many pupils amid a multiplicity of distracting exercises, movements, and sounds. The recitations of this class of pupils, to be profitable and satisfactory, must be conducted in a manner which requires time, discussion, and explanation, and the undivided attention both of pupils and teacher. The course of instruction provided in the High School will be equal in extent and value to that which may be given in any private school, academy, or female seminary in the place, and which is now virtually denied to the great mass of the children by the burdensome charge of tuition.

As has been already implied, the advantages of a High School should not be confined to the male sex. The great influence of the female sex, as daughters, sisters, wives, mothers, companions, and teachers, in determining the manners, morals, and intelligence of the whole community, leaves no room to question the necessity of providing for the girls the best means of intellectual and moral culture. The course of instruction should embrace the first principles of natural and mechanical philosophy, by which inventive genius and practical skill in the useful arts can be fostered; such studies as navigation, book-keeping, surveying, botany, chemistry, and kindred studies, which are directly connected with success in the varied departments of domestic and inland trade, with foreign commerce with gardening, agriculture, the manufacturing and domestic arts

such studies as astronomy, physiology, the history of our own state and nation, the principles of our state and national constitutions, political economy, and moral science; in fine, such a course of study as is now given in more than fifty towns and cities in New England, and which shall prepare every young man, whose parents may desire it, for business, or for college, and give to every young woman a well disciplined mind, high moral aims, refined tastes, gentle and graceful manners, practical views of her own duties, and those resources of health, thought, conversation, and occupation, which bless alike the highest and lowest station in life. When such a course is provided and carried out, the true idea of the High School will be realized.

Third. It will equalize the opportunities of a good education, and exert a happy, social influence throughout the whole community from which it gathers its scholars. From the want of a public school of this character, the children of such families as rely exclusively on the district school are isolated, and are condemned to an inferior education, both in quality and quantity; they are cut off from the stimulus and sympathy which the mingling of children of the same age from different parts of the same community would impart. The benefits, direct and indirect, which will result to the country districts, or poor families who live in the outskirts of the city, from the establishment of a school of this class, cannot easily be overestimated. The number of young men and young women who will receive a thorough education, qualifying them for business, and to be teachers, will increase from year to year; and the number who will press up to the front ranks of scholarship in the school, bearing away the palm of excellence by the vigor of sound minds in sound bodies, of minds and bodies made vigorous by long walks and muscular labor in the open air, will be greater in proportion to their number than from the city districts. It will do both classes good, the children of the city, and the children of the country districts, to measure themselves intellectually in the same fields of study, and to subject the peculiarities of their respective manners, the roughness and awkwardness sometimes characteristic of the one, and the artificiality and flippancy of the other, to the harmonizing influence of reciprocal action and reaction. The isolation and estrangement which now divide and subdivide the community into country and city clans, which, if not hostile, are strangers to each other, will give place to the frequent intercourse and esteem of individual and family friendship, commenced in the school-room, and on the play-ground of the school. The school will thus become a bond of union, a channel of sympathy, a spring-head of healthy influence, and stimulus to the whole community.

Fourth. The privileges of a good school will be brought within the reach of all classes of the community, and will actually be enjoyed by children of the same age from families of the most diverse circumstances as to wealth, education, and occupation. Side by side in the same recitations, heart and hand in the same sports, pressing up together to the same high attainments in knowledge and character, will be found the children of the rich and poor, the more and the

less favored in outward circumstances, without knowing or caring to know how far their families are separated by the arbitrary distinctions which divide and distract society. With nearly equal opportunities of education in childhood and youth, the prizes of life, its best fields of usefulness, and sources of happiness will be open to all, whatever may have been their accidents of birth and fortune. From many obscure and humble homes in the city and in the country, will be called forth and trained inventive talent, productive skill, intellectual taste, and God-like benevolence, which will add to the general wealth, multiply workshops, increase the value of farms, and carry forward every moral and religious enterprise which aims to bless, purify, and elevate society.

Fifth. The influence which the annual or semi-annual examination of candidates for admission into the High School, will operate as a powerful and abiding stimulus to exertion throughout all the lower schools. The privileges of the High School will be held forth as the reward of exertion in the lower grade of schools; and promotion to it, based on the result of an impartial examination, will form an unobjectional standard by which the relative standing of the different schools can be ascertained, and will also indicate the studies and departments of education to which the teachers in particular schools should devote special attention. This influence upon the lower schools, upon scholars and teachers, upon those who reach, and those who do not reach the High School, will be worth more than all its costs, independent of the advantages received by its pupils.

Sixth. While the expenses of public or common schools will necessarily be increased by the establishment of a school of this class, in addition to those already supported, the aggregate expenditures for education, including public and private schools, will be diminished. Private schools of the same relative standing will be discontinued for want of patronage, while those of a higher grade, if really called for by the educational wants of the community, will be improved. A healthy competition will necessarily exist between the public and private schools of the highest grade, and the school or schools which do not come up to the highest mark, must go down in public estimation. Other things being equal, viz., school-houses, teachers, classification, and the means and appliances of instruction, the public school is always better than the private. From the uniform experience of those places where a High School has been established, it may be safely stated, that there will be an annual saving in the expenses of education to any community, equal to one half the amount paid for tuition in private schools, and, with this saving of expense, there will be a better state of education.

Seventh. The successful establishment of a High School, by improving the whole system of common schools, and interesting a larger number of families in the prosperity of the schools, will create a better public sentiment on the subject than has heretofore existed, and the schools will be regarded as the common property, the common glory, the common security of the whole community. The wealthy will feel that the small additional tax required to establish

and sustain this school, if not saved to them in the diminished tuition for the education of their own children in private schools, at home and abroad, is returned to them a hundred fold in the enterprise which it will quicken, in the increased value given to property, and in the number of families which will resort to the place where it is located, as a desirable residence, because of the facilities enjoyed for a good education. The poor will feel that, whatever may betide them, their children are born to an inheritance more valuable than lands or shops, in the free access to institutions where as good an education can be had as money can buy at home or abroad. The stranger will be invited to visit not only the institutions which public or individual benevolence has provided for the poor, the orphan, the deaf mute, and the criminal, but schools where the children and youth of the community are trained to inventive and creative habits of mind, to a practical knowledge of the fundamental principles of business, to sound moral habits, refined tastes, and respectful manners. And in what balance, it has well been asked in reference to the cost of good public schools, as compared with these advantages, shall we weigh the value of cultivated, intelligent, energetic, polished, and virtuous citizens? How much would a community be justified in paying for a physician who should discover or practice some mode of treatment through which many lives should be preserved? How much for a judge, who, in the able administration of the laws, should secure many fortunes, or rights more precious than fortunes, that might else be lost? How much for a minister of religion who should be the instrument of saving hundreds from vice and crime, and persuading them to the exertion of their best powers for the common good? How much for the ingenious inventor, who, proceeding from the first principles of science onward, should produce some improvement that should enlarge all the comforts of society, not to say a steam-engine or a magnetic telegraph? How much for the patriotic statesman, who, in difficult times, becomes the savior of his country? How much for the well-instructed and enterprising merchant who should suggest and commence the branches of business that should bring in a vast accession of wealth and strength? One such person as any of these might repay what a High School would cost for centuries. Whether, in the course of centuries, every High School would produce one such person, it would be useless to prophesy. But it is certain that it would produce many intelligent citizens, intelligent men of business, intelligent servants of the state, intelligent teachers, intelligent wives and daughters, who, in their several spheres, would repay to any community much more than they and all their associates had received. The very taxes of a town, in twenty years, will be lessened by the existence of a school which will continually have sent forth those who were so educated as to become not burdens but benefactors.

These results have been realized wherever a Public High School has been opened under circumstances favorable to the success of a private school of the same grade,—wherever a good school-house, good regulations, (for admission, attendance, studies, and books,) good teachers, and good supervision have been provided.

The Principal of the Latin High School of Boston, in a letter written 1846, says,—

"There is no institution so truly republican as such a school as this. While we, the present teachers, were undergraduates of the school, the rich sent their sons to the school because it was the best that could be found. They ascertained that it was not a source of contamination, but that their boys learned here to compare themselves with others, and to feel the necessity of something more than mere *wealth* to gain consideration. At that time, poor men sent their sons hither because they knew that they here would get that education which they could afford to give them in no other way. They gained too by intercourse with their wealthier mates a polish of exterior manners, and an intellectual turn of mind which their friends could appreciate and perceive, although they could not tell what it was that had been acquired. Oftentimes also the poor boy would take the lead of his more pampered classmate, and take the honors of the school.

In a class lately belonging to the school were two boys, one the son of a man of extreme wealth, whose property cannot be less than \$500,000; and the other the son of an Irish laborer employed by the city at a dollar a day to sweep the streets. The latter boy was the better scholar."

The Principal of the English High School in a letter writes,—

"The school under my charge is principally composed of what are called the middling classes of our city. At present, about one third of my pupils are sons of merchants; the remaining two thirds are sons of professional men, mechanics and others. Some of our best scholars are sons of coopers, lamp-lighters, and day laborers. A few years ago, he who ranked, the last year of his course, as our third scholar, was the son of a lamp-lighter, and worked three nights per week, during his whole course, to save his father the expense of books, &c., while at school. This year my second (if not the first,) scholar, is a cooper's son. We have several sons of clergymen of distinction and lawyers of eminence. Indeed, the school is a perfect example of the poor and the rich, meeting on common ground and on terms quite democratic.

The Principal of the High School for girls in Newburyport, writes,

"The Female High School was established by the town of Newburyport nearly three years since, under great opposition. It was the desire of its principal advocates to make it such a school, in respect to the course of instruction, and facilities for acquiring knowledge, and laying the foundation for usefulness, as should so successfully compete with our best private schools, as to supersede their necessity."

"A few days after we were organized, a gentleman came into the school-room to make some inquiries respecting the classes of society most fully represented amongst us. I was totally unable to give him the desired information, and judging from the appearance of the individuals of my charge, I could form no idea as to who were the children of poor parents, or of those in better circumstances. I mentioned the names of the parents of several, which I had just taken, and, amongst others, of two young ladies of seventeen or eighteen years of age, who, at that moment, it being recess, were walking down the room, with their arms closely entwined about each other's necks. 'The first of the two,' said the gentleman, 'is a daughter of one of our first merchants, the other has a father worse than none, who obtains a livelihood from one of the lowest and most questionable occupations, and is himself most degraded.' These two young ladies were classmates for more than two years, and very nearly equal in scholarship. The friendship they have formed, I am confident no circumstances of station in life can ever impair.

"We have had in our number many from the best families, in all respects, in the place. They sit side by side, they recite, and they associate most freely with those of the humblest parentage, whose widowed mothers, perhaps, toil day after day, at a wash-tub, without fear of contamination, or, as I honestly believe, a thought of the differences which exist. I have, at present, both extremes under my charge—the child of affluence and the child of low parentage and deep poverty. As my arrangements of pupils in divisions, &c. are, most of them, alphabetical, it often happens that the two extremes are brought together. This never causes a murmur, or look of dislike.

The session was suspended at twelve, and recommenced at half-past two.

The provincial inspector notified the teachers that they must keep school all the year; and it would become his duty to take rigorous measures with those who should not fulfill this obligation. In reply to M. Deltombe, who said that sometimes there were no scholars, he said that he could not admit that there was a total want of scholars, that such a case was impossible.

M. Masson explained his method of teaching the catechism. He uses the simultaneous and individual methods, with explanations from time to time.

The ecclesiastical cantonal inspector, M. Brohez, said that these explanations should be prepared under the direction of the priest. He also directed the attention of the teachers to the pronunciation of the catechism and of the prayers.

An exercise followed in teaching French, and another in grammar, the latter being a method of distinguishing between the verbal adjective and the present participle, illustrated upon the board.

Cantonal inspector Dubois gave instructions in agriculture and gardening, and recommended the teachers to communicate such instruction to their pupils.

The provincial inspector stated a curious fact with regard to transplanting the beet. It has two rows of roots, always pointing to the east and west, which in transplanting must be set in the same direction, otherwise the growth of the plant is much retarded.

Inspector Dubois informed the meeting that the next conference would take place October 19, 1848, and that the subjects for discussion would be methods of teaching arithmetic, and the first three centuries of Belgian history.

NORMAL SCHOOLS.

The inspection, management, and instruction of the State normal schools, the normal departments annexed to the higher primary schools, and the episcopal normal schools, are substantially alike in the three classes of institutions.

All candidates for entrance are examined by a "jury," composed partly of government inspectors and partly of the instructors. The courses of study occupy three years. The pupils are usually required to board and lodge upon the school premises. The regular graduates have the first right of examination for vacant situations as public teachers; and government, besides the assistance given to the normal schools by erecting buildings and bearing part of the current expenses, appropriates about \$12,500 annually in sums usually of about \$40 each, to the assistance of a number of the more meritorious pupils.

Schools of application are annexed to all the normal schools, being the primary schools of the neighborhood. The following account of the government normal school at Lierre will give a fair general representation of these schools.

NORMAL SCHOOL AT LIERRE.

Candidates for admission to the normal school at Lierre, are first examined by the provincial inspectors of primary instruction, who are charged in particular to see that none are admitted who are afflicted with any deformity or infirmity incompatible with the occupation of teaching. If suitable, they are then examined by a committee or "jury" of two inspectors and three of the faculty of the school, in reading, writing, religion, and morals, the grammar of their own and of the French language, the four fundamental rules of arithmetic, the legal system of weights and measures, the elements of geography, particularly of Belgian geography, and the principal facts of Belgian history.

The course of study at Lierre, occupying three years, embraces the following subjects, viz: religion and morals; sacred and church history; reading, writing, and book-keeping; grammar and composition; geography and history, especially of Belgium; arithmetic, and its business applications; elements of theoretical geometry, and of mapping, land measuring, and leveling; elementary algebra; portions of the natural sciences applicable to every-day life; agriculture and horticulture, grafting and pruning; theory of education, pedagogy and methodology; hygiene, as applicable to children and schools; elements of constitutional law; knowledge of the constitution and laws of Belgium, and of the most usual forms under them, church and school laws; singing and plain chant, playing the organ, harmony and accompaniment; drawing, linear, ornamental, and architectural. During the third year of the course, the pupils are required to teach the different classes in the schools of application or practice annexed to the normal schools, under the direction of the professors of pedagogy and methodology.

The instructors are a director and sub-director, who are ecclesiastics, nine professors, an adjunct professor, and a gardener-demonstrator; the full complement of pupils being 150.

The pupils board and lodge within the institution, and the entire apportionment of their time, occupations, and recreations, is under the control of the school authorities. The whole establishment is under the hygienic supervision of a physician, who directs any measures necessary for the health of the inmates.

There is a library of educational works, which receives a copy of every work published by government, or by its assistance, and some philosophical and chemical apparatus, maps, and models for drawing.

The entire expense of the school at Lierre, for 1848, was \$6,943.22, of which \$5,395.33 was paid for salaries.

There is an examination at graduation, according to the result of which three grades of diplomas are given. At present (1848) all the graduates of the normal schools are employed in teaching. The government continues the bounty above mentioned, for three years after graduation, to such recipients of it as do not find their salaries, as public teachers, sufficient for their support.

FEMALE NORMAL EDUCATION.

There are fifteen religious establishments and boarding-schools for females designated by government, to a certain number of pupils in which a bounty is paid similar to that given to male normal pupils. These institutions are under government inspection, and the beneficiaries in them are employed as public teachers after their graduation. The course of study is substantially similar to that of the normal schools for males, some studies, as geometry, agriculture, horticulture, and constitutional law, being omitted, and needlework and the application of drawing to the cutting and fitting of dresses being added.

ORGANIZATION AND RESULTS IN 1868.

I. SCHOOL AUTHORITIES.

In Belgium there is no separate Ministry of Public Instruction, all which appertains to such department elsewhere being assigned to the Minister of the Interior, with a separate bureau. The chief executive officer in the several provinces is the governor, to whom the local school authorities must report. The superintendence of primary instruction is in the hands of the communal authorities and special inspectors. The normal and higher primary schools are under special officers, and the female primary schools under a female inspector. In every province there is a provincial inspector appointed by the king, whose duty it is to visit all the schools of his province at least once a year. Immediately under him are the district inspectors, who are appointed for three years. They must visit every school in their district at least twice a year. The provincial inspectors are appointed by the Government and receive a salary of 4,500 francs and 1,000 francs for office and traveling expenses. The district inspectors (64 at present) receive no fixed salary, but an allowance, not to exceed 500 francs, out of the provincial treasury. The inspector of the normal schools receives 5,500 francs salary and 500 for office and traveling expenses. The female inspector of the normal schools for girls receives 2,200 francs.

Besides these persons, authorized by the State to visit the schools, the clergy *ex-officio* have the right to visit the primary schools at any time. The bishops and consistories must submit every year a report of their inspection to the Minister, and give an account of the state of moral and religious instruction. There are clerical cantonal inspectors and clerical diocesan inspectors; the former, numbering 142, receive since 1863 the sum of 3,800 francs, and the latter each 3,000. In the Protestant and Jewish schools a delegate of the consistory superintends the religious instruction. The provincial inspectors assemble annually in conference under the presidency of the Minister of the Interior, on matters relating to the schools; amongst other things, the text-books to be used, which the government does not prescribe, but publishes annually a list, from which each teacher can make his selection. In 1864 this list embraced 473 works.

The superintendence of secondary instruction belongs to a general inspector and two special inspectors, one for the humanistic and the other for the realistic studies. The special inspectors reside at Brussels, and meet in conference, visit the Atheneums at least once a year, and one must visit each of the other institutions, at such time as the Minister may fix. A report of each visit must be made to the Minister, and the general inspector must make a report concerning all appointments, promotions, &c. They are appointed by the king, and receive a salary of 6,000 and 5,000 francs, and 12 francs traveling expenses per day. The new law (1850) provides a council of secondary studies (*conseil de perfec-*

tionnement), which consists of at least eight and not more than ten members. Besides the regular members, the president of the educational bureau in the Ministry of the Interior, the general inspector, and four persons chosen by the Minister from the prefects, and professors of the Atheneums, constitute advisory members. There is also a council of superior studies (*conseil de perfectionnement de l'enseignement supérieur*), which consists of eight professors of the State Universities (one from each faculty), the two rectors, inspectors, and some private individuals, who receive a *per diem* allowance (12 francs a day) and their mileage. The Minister presides at its sessions.

II. PRIMARY INSTRUCTION.

There are four different kinds of primary schools, viz.: 1, communal schools, maintained by the communes; 2, private subsidized schools—schools founded by private individuals, but subsidized by government, and under government inspection; 3, private schools not subsidized by government, and not under government inspection; 4, superior primary schools or courses, organized by the communes and subsidized by the State. To these should be added courses for adults, which are separate from the primary schools, but to a certain degree supplement their instruction.

The course of instruction in the primary schools embraces: Religion, morals, reading, writing, arithmetic, the mother tongue, (French, Flemish, or German, according to the different locality,) which are obligatory. The following are optional: Drawing, elements of natural sciences, music and gymnastics, elements of history and geography, and in girls' schools also needlework.

In the communal schools the teacher is elected by the council from among such candidates as hold a legal certificate. Every vacancy must be filled within forty days; if within that time the council has not made a choice, a teacher is appointed by government. The council may suspend a teacher for three months, but subject to the final action of the government.

Professional Training of Teachers.

For the education of primary school-teachers there are two State Normal Schools, one at Lierre for the Flemish, and one at Nivelles for the Wallonic provinces. The number of pupils to be admitted annually is fixed by the minister. The candidates must be at least sixteen and not over twenty-two years of age, and must undergo an examination in the following subjects: Religion, Bible history, reading, writing, Flemish or French grammar, arithmetic, general geography, geography of Belgium, history of Belgium, and vocal music. The examination is oral and written; it is held by an examining jury composed of the director of the Normal School and the provincial inspector. The pupils are boarded and lodged at the school, and have only to provide the necessary textbooks, &c. Stipends of at most 200 francs are granted to pupils, partly

by the State, partly by the different provinces, on the condition to serve the government for five years; or refund, in case of non-compliance.

The course of instruction lasts three years and embraces the following subjects: *First Year*—Bible history, French, Flemish, penmanship, mathematics; arithmetic applied to practical purposes and elements of algebra; history; elements of mathematical and physical geography and ethnography; political geography of Europe; elements of natural sciences applied to practical purposes; chemistry, music, linear drawing, horticulture, book-keeping, gymnastics. *Second Year*—Sacred history, continued; French and Flemish; penmanship; planimetry, surveying, &c.; history of Belgium till the supremacy of the house of Burgundy; political geography of Asia, Africa, America, and Australia; mineralogy and botany, music, linear drawing, horticulture, book-keeping, pedagogics, gymnastics. *Third Year*—French and Flemish; arithmetic and algebra as far as equations of the second degree; continuation of Belgian history; geography of Europe; geography of Belgium in detail; zoölogy, hygiene, music pedagogics on Beneke's principles, constitution and system of primary instruction in Belgium.

The following is the distribution of studies :

	I.	II.	III.		I.	II.	III.
Religion,.....	3	3	3	Natural Sciences,....	1½	1½	1½
Mother-tongue,.....	6	6	4	Linear drawing,....	2	2	—
Reading,.....	2	2	—	Music,.....	3	2	1
Penmanship,.....	2	2	—	Book-keeping,.....	1	2	—
Mathematics,.....	4	4	2	Horticulture,.....	2	2	1
Geography,.....	2	2	1	Constitution, &c.,....	—	—	2
History,.....	1	1	1	Pedagogics,.....	—	2	3
				Total,.....	29½	31½	19½

In connection with every Normal School there is a school of practice (*école d'application*), under the superintendence of the professor of pedagogics. At the end of every half year, the students are examined on all the subjects taught during the half-year, before a jury composed of the inspector, the director, and one teacher of the Normal School, two teachers of other schools, and the ecclesiastical superintendent of primary instruction. At the end of the third year, candidates must pass another examination before a jury composed of six members, viz., the inspector of secondary schools, chairman, the director and two professors of the Normal School, and two professors from other schools. The examination is in three divisions, viz., oral, written, and practical, and comprises all subjects taught at the Normal School. Marks are given for each subject, and the sum determines the position the candidate holds. Certificates of three kinds are given; in order to receive a certificate of the first class at least 550 marks are required; for one of the second class, 500; one of the third class, 400.

Besides the regular Normal Schools, there are Normal sections in connection with several Middle Schools (so called), with a three years' course. Some private schools also prepare teachers for the elementary schools.

There are no public schools for the education of female teachers, but the Minister has authorized one or more private schools in every province, where female candidates can receive their education, with a similar course as those of the male candidates.

Salaries.

The compensation of teachers consists of the following items: a fixed salary of at least 200 francs; remuneration for instruction given to poor children (paid by the communes); a house or its equivalent in money. Salaries are classified as follows: (1) In schools with more than 100 scholars, the teacher receives a maximum salary of 800 francs; (2) in schools with 60 scholars, a maximum salary of 700 francs; (3) in schools with less than 60 scholars, 600 francs. In 1863 a law was passed fixing the minimum salary at 850 francs for schools of the third class, at 950 francs for schools of the second class, and 1,050 francs for schools of the first class.

The school-fee is fixed by the communal authorities. Poor children receive free instruction. To this are entitled, children of persons supported by the public charities, day-laborers, &c. The communal council every year determines who is to have free instruction, as also the amount of school-fee which the teacher is to receive from the communal funds. At the beginning of every quarter the teacher must report to the burgo-master the names of all the poor children who have attended school, the length of time which they attended, and the sum to be paid to the teacher. Eight days from the time this report has been handed in, this statement must be verified and the money paid to the teacher. All sums applicable to primary instruction form a special fund, which can not be used for other purposes. The expenses of primary instruction are borne exclusively by the communes; except in extreme cases, they receive a subsidy from the provincial or State authorities.

Pensions and Savings Banks.

In the capital of every province there are savings banks (*caisses de prévoyance*), under the management of special commissioners, intended to secure a timely help for poor teachers and give pensions to teachers' widows and orphans. Every teacher is obliged annually to pay a certain fixed amount into this fund. For teachers in the cities there is a central fund in Brussels. The contributions of teachers towards these funds vary from 8 to 4 per cent. of their salary. The provinces, the State, and private individuals also contribute considerable sums every year. The pensions are for life-time, or for a limited period. Every teacher who is sixty years old and has served thirty years is entitled to a life-pension, as well as those whose health, after twelve years' service, is so impaired that they can no longer keep school. The full pension of teachers is paid to their widows, and to their orphans till the latter have reached their sixteenth year, except in cases where the marriage has taken place after the pension was granted.

To the central fund at Brussels the teachers at the communal *écoles*

moyennes, the drawing-schools, the deaf-mute and blind institutions, contribute, and are entitled to share in its pensions. The payments made by teachers into the provincial funds average 184,000 francs per year; the provinces pay annually 10,500 francs and the government 15,000 francs. The pensions paid average 120,000 francs annually.

The government endeavors to stimulate and encourage the teachers in their arduous calling in various ways, such as an honorable public mention, gifts of books, or money, to be paid once in every three years. The teacher who has three times received the money gift is entitled to an increase of his pension, the amount to be calculated according to the average of the sums received.

Higher Primary Course.

For scholars of the higher classes there exist, since 1842, primary competitive courses. The schools which are to participate in these courses are every year selected by the provincial inspector. The number of scholars is fixed, one-half by the teachers, the other half by lot, but must not exceed the proportion of one to five for those schools whose highest class does not number more than twenty scholars. The examining jury is composed of teachers presided over by the inspector of the school-district.

School-houses.

Although special attention has been given by the government for the last thirty years to school-houses and their equipment, there is much yet to be done, especially in the country districts, where many school-houses are in a deplorable condition.

School-attendance and Results.

The attendance at school has been considerably improved, and this increase is due to moral influences, as attendance of children at school is not made obligatory on parents by law.

As regards the result of public instruction, the people may be classed as follows, viz.: 1, Those who can neither read nor write; 2, those who have in part or wholly mastered the obligatory subjects of instruction; 3, those who in addition to the obligatory subjects have mastered some of the optional ones. In 1851, 111,734 belonged to the first class; 252,851 to the second class; 19,556 to the third. In 1854, 256,451 belonged to the second class, and 20,988 to the third class. In 1857, 256,555 belonged to the second class, and 22,668 to the third class.

The educational statistics of the conscripts were as follows: Among 1,000 conscripts there were, in 1845, 391 who could neither read nor write; in 1849, 387; in 1851, 371; in 1854, 361; in 1857, 356; in 1860, 329; in 1863, 302.

From an examination of the National Guard in 1866, it appears that out of 57,823, the number of illiterate was 13,400.

III. SECONDARY INSTRUCTION (*enseignement moyenne*).

The secondary schools of Belgium are divided into: (1) Schools maintained entirely by the government; (2) Schools subsidized by the government; (3) Schools maintained entirely by the commune; (4) Schools subsidized by the communes; (5) Schools supported by religious societies or private individuals.

The Atheneums.

The Atheneums (*Athénées*) have two divisions, viz., a humanistic classical one and a realistic one. The classical course is as follows:

SUBJECTS.	CLASSES.						
	Preparatory.	VI.	V.	IV.	III.	II.	I.
Religion	2	2	2	2	2	2	2
Latin	2	14	14	10	9	11	10
Greek	—	—	4	4	3	3	3
French	12	5	5	3	3	3	3
Flemish *	3	2	2	2	1	1	—
English or German *	—	—	—	—	2	2	2
Flemish, English, or German †	—	—	—	2	3	3	2
History and Geography	3	1	1	3	2	4	2
Mathematics	1	1	1	3	5	4	2
Physics	—	—	—	—	—	—	2
Penmanship or Drawing	6	2	2	—	—	—	—
Total in the Flemish provinces	27	27	27	27	27	28	27
“ “ Walloon “	24	25	25	27	27	28	27

Instruction in Latin commences in the preparatory class, but is limited to the regular declensions and conjugations; syntax is finished in the third class. In poetry and rhetoric much attention is given to the niceties of the language and idiomatic expressions. Such familiarity with Latin must be gained as to dispense with the use of the dictionary in the highest class. The following authors are read: 6th class, a Latin anthology, epitome, *historias sacræ*, *de viris illustribus urbis Romæ*; 5th class, the Fables of Phædrus and Cornelius Nepos; 4th class, *Cæsar: De Bello Gallico* (3 books), Virgil's *Eclogues*; 3d class, Livy, Virgil's *Georgics*, *Cæsar*; 2d class, one of Cicero's Orations, Virgil's *Æneid*, Horace's *Odes* or two Epistles; Cicero, *De Amicitia*, or *De Senectute*; Livy; 1st Class, Cicero, *Pro Milone et Brutus*; Sallust, Virgil, Livy; Horace, *Satires* or *De Arts Poetica*. The comparatively large number of authors in the higher classes are read only cursorily.

Greek is begun in the second half-year in the 5th class; in the 3d class Xenophon's *Anabasis* and Herodotus are read; 2d class, Homer's *Odyssey* (one canto), Xenophon's *Hellenica*; 1st class, Homer's *Iliad* (one canto), Demosthenes, *Olynthic* or *Philippic* orations. The number of hours devoted to the study of Greek is so small that no great results can be obtained.

The instruction in French and other modern languages is excellently organized. In the lower classes are selections from various authors, and in the higher, entire treatises and a brief survey of the literature.

* In the Rhenish provinces.

† In the Walloon provinces.

Geographical instruction in the preparatory class and in the 6th class comprises the rudiments of mathematical and physical geography, the orography and hydrography of Europe; general geography of Europe and Asia; in the 5th class, America, Africa, Australia, special geography of Belgium; 4th class, ancient geography; 3d class, physical geography of Europe and Asia; 2d class, physical geography of Africa, America, and Australia; 1st class, Belgian statistics, elements of astronomical geography. History is only properly commenced in the 4th class. The history of the eastern countries is only given in a brief review; history of Greece and Rome in full till the destruction of Carthage; 3d class, Roman history continued; the Middle Ages till the Crusades; 2d class, history of the Middle Ages continued, Modern history; 1st class, history of Belgium.

Mathematical instruction proper commences in the 8d class, the lower classes being devoted to arithmetic. In the 8d class the following subjects are taught: Algebra, including equations of the first degree, geometry, including the circle; 2d class, equations of the second degree, easy equations of the third degree, planimetry finished, stereometry; 1st class, logarithms, interest, &c., and trigonometry. Instruction in physics is now only given in the 1st class, whilst formerly there were seven hours devoted to it in the 2d class. The results obtained in mathematics and in physics are excellent; natural history is not taught.

Realistic instruction is imparted in a lower division with a preparatory class, in a three years' course, and a higher division, subdivided in three sections, each with a two years' course (the commercial, industrial, and scientific sections). Recently the industrial section has been abolished, and has been consolidated with the commercial section into a commercial and industrial section. The course of instruction is the following

	Preparatory Class.	Lower Division.	Commercial and Industrial Section.	Scientific Section.
Religion.....	—.....5	4	3.....2	1.....2
French,*.....	2.....2	2	2.....2	2.....2
French,†.....	9.....8	6	6.....5	6.....5
Flemish,*.....	12.....8	6	6.....5	6.....5
Flemish,†.....	3.....2	2	2.....2	2.....2
German,*.....	—.....3	3	2.....2	2.....2
German,†.....	—.....4	4	3.....2	2.....2
English,*.....	—.....—	2	2.....3	3.....3
English,†.....	—.....—	3	3.....3	3.....3
History and Geography.....	2.....2	2	3.....3	2.....3
Mathematics.....	5.....5	5	5.....—	—.....5
Physics.....	—.....—	—	2.....2	—.....2
Chemistry.....	—.....—	—	—.....4	4.....—
Natural History.....	—.....—	—	2.....—	—.....—
Astronomy.....	—.....—	—	—.....—	1.....—
Mechanics.....	—.....—	—	—.....—	—.....2
Descriptive Geometry.....	—.....—	—	—.....—	—.....2
Book-keeping.....	—.....—	3	—.....—	—.....—
Commercial Science.....	—.....—	—	2.....5	3.....—
National Economy.....	—.....—	—	—.....—	2.....—
Penmanship.....	6.....2	2	—.....—	—.....—
Drawing.....	2.....4	4	3.....3	4.....5
Total in the Flemish provinces,...	29.....29	32	32.....32	31.....29
" " Walloon.....	29.....30	34	33.....32	32.....30

* In the Flemish provinces.

† In the Walloon provinces.

The scholars in the professional division receive a diploma after having finished their studies satisfactorily. This diploma is of the same degree as that which the scholars of the humanistic division receive in order to get the title *gradué en lettres*, which is required for entering the university. The scholars of the commercial and industrial section, after having finished their studies, receive a diploma of capacity, if they have satisfactorily passed an examination before an examining jury annually appointed by the Minister. This examination is written and oral, and comprises the following subjects: In the Walloon provinces a French composition, translation from the French into two modern languages (Flemish, German or English). In the Flemish districts a French and Flemish composition, translation from the French into German or English. The oral examination comprises applied arithmetic, elements of geometry, commercial geography, history of commerce, commercial science, elements of political economy and chemistry. Large numbers of students have every year passed this examination.

For every Atheneum there is an administering committee (*bureau administratif*), composed of the burgomaster, the aldermen, and six members selected by the king from among twelve men proposed by the municipal council. Only half of this number may be members of the council. The members of this committee hold office for three years; they meet on invitation of the governor or burgomaster. They furnish an annual report.

The teachers of the Atheneums and middle schools are appointed by the government. The different grades are: Prefect, professor, and teacher at the Atheneums; director and teacher at the middle schools. The salaries vary from 3,800 francs (*prefect*) to 200 francs (*teacher of gymnastics*). The scholastic year is divided into two terms (*semester*), the first from October 1 to March 1; the second from March 1 till August 15th. To enter the preparatory class the candidate must be at least ten years of age, and pass an examination in reading, writing, arithmetic, and elements of French grammar. The hours of instruction are from 8 to 12 A. M.; and 2 to 4 P. M. At the end of every month the professors submit a report to the prefect; and three times a year reports are sent to the parents. The vacations are: 2 weeks at Easter, and from Aug. 15th till Oct. 1.

Education of Secondary School-teachers.

For the education of teachers for the classical (humanistic) studies in the Atheneums there is a Normal School at Liege, organized in 1852. The Minister of the Interior annually fixes the number of pupils to be admitted to this school. The required age is eighteen years minimum, and twenty-three maximum; the candidate for admission must possess the diploma *gradué en lettres*, and undergo an examination before an examining jury composed of professors and inspectors of middle schools. This examination is oral and written, and comprises Latin, Greek, French, and ancient history. The course of instruction at the Normal

School lasts four years, and consists of theoretical lectures and practical exercises. The former embrace the Latin language and literature, Greek language and literature, history of ancient literature and exposition of the theoretical principles of literature, taking as examples the most eminent Greek, Latin, and French writers; history of French literature, Flemish, German, and English literature, philosophy (*anthropology, morals and logic*), ancient history, Roman archæology, history of the Middle Ages, history of Belgium, ancient and modern geography, physical geography, general grammar, theoretical principles of Greek, Latin, and French, syntax, pedagogics. No one is allowed to remain longer than two years in one division, except when the studies have been interrupted by sickness. Before entering on the fourth year, every pupil must get from the jury the diploma of an aspirant to a professor's place (*aspirant professeur agrégé*). At the end of the last year, pupils have to undergo the examination for *professeur agrégé*. The faculty consists of a director, teachers, a secretary and a steward. The director is appointed by the king, and has the rank of a university professor. His salary is 6,000 francs. The teachers' salary varies from 5,000 to 8,000 francs.

For the education of teachers of mathematics and natural sciences in the Atheneums there is a Normal School in connection with the university of Ghent. The conditions of admission, &c., are the same as at Liege.

The Minister announces the number of vacancies in the Normal class, and the candidates must present themselves with the evidence of their not being over twenty-three years of age, and that they have passed with honor the diploma examination of the mathematical course of the *Athénées*. They are then examined both orally and in writing on subjects which will test their knowledge of these studies and their aptitude for teaching.

The course covers three years and embraces the following subjects: 1st year, higher mathematics, analytical geometry, elements of descriptive geometry, integral and differential calculus, experimental physics, elements of mechanics; 2d year, analytical statics, descriptive geometry; stereotomy, organic and inorganic chemistry, elements of astronomy; 3d year, integral and differential calculus, analytical mechanics, elements of construction of machines, industrial mechanics, surveying, leveling. Extra studies are: 2d year, mathematical methodics; 3d year, elements of mineralogy, zoology, and botany.

There are examinations before entering on the last year and at the end of the last year. If the latter has been passed satisfactorily, the diploma of *professeur agrégé pour les sciences* is granted. Their subsequent appointment and promotion will depend on their success in subordinate positions.

The professors and lectures of the superior Normal Schools rank with the other University professors and their instructions.

The *écoles moyennes* of all kinds have each three classes. If a preparatory course is connected with the school, it consists of two classes, each of which has two divisions, covering altogether four years. In order to be admitted into the preparatory class, a child must be at least six years and at most ten years old. A knowledge of the following subjects is required: Reading, writing, arithmetic, elements of French, Flemish, or German. The course of instruction is the following:

	i.	ii.	iii.
Religion.....	2	2	2
French.....	10	8	8
Flemish and German.....	4	4	3
History and Geography.....	2	3	4
Mathematics.....	6	6	6
Natural History.....	—	1	2
Book-keeping.....	—	2	2
Penmanship.....	4	2	1
Drawing.....	3	3	3
Total.....	31	31	31

In order to educate teachers for the *écoles moyennes*, there are pedagogical courses at the elementary school teachers' seminary at Nivelles, attended by such as have already obtained the diploma as elementary school-teacher. The examination comprises the following subjects: French, elements of history and geography (especially of Belgium), arithmetic in its application to practical purposes, algebra, including equations of the second degree, planimetry, elements of commercial law and book-keeping, drawing, calligraphy. The number of students to be admitted is not to exceed twelve per annum; each one receives a stipend of 400 francs from the government. Since 1863 a course for teachers at the *écoles moyennes* has been connected with the elementary Normal School at Bruges. The condition of admission is a diploma as elementary school-teacher; the number of candidates is annually fixed by the Minister. The course of studies covers two years, and embraces the following subjects: 1st year, Flemish, French, elements of history and geography (especially Belgium), arithmetic, algebra as far as equations of the second degree, planimetry, book-keeping, elements of commercial law, elements of physics, drawing; 2d year, pedagogics, Flemish, French, algebra (as far as logarithms), geometry, trigonometry, surveying, mechanics, elements of chemistry, natural history.

Candidates for teachers' places at the *écoles moyennes*, in order to obtain the diploma as professor, must undergo an examination (oral and written) embracing all the subjects taught in the special course.

The salary of directors at the *écoles moyennes* varies from 2,500 to 1,600 francs, and the salary of teachers from 1,700 to 200.

The provincial and communal institutions of a secondary character, subsidized by government or commune, have in all essential points the same organization. They are all subject to the inspection of the government; the communal authorities appoint the teachers, who must have satisfied all the requirements of the law. The school fees in the *écoles moyennes* vary from 12 to 36 francs, according to the classes.

IV. EDUCATIONAL STATISTICS OF BELGIUM—1866.

I. ELEMENTARY INSTRUCTION.

1. PRIMARY SCHOOLS (*l'instruction primaire*).(1.) *Schools under Government Inspection.*

3,511 Communal Schools (1,051 for boys; 621 for girls; 1,839 for boys and girls).

564 Subsidized Schools (36 for boys; 361 for girls; 167 for boys and girls).

24 Private Schools (17 for girls; 7 for boys and girls).

39 Boarding Schools (13 for boys; 26 for girls).

Total, 4,138 Schools under Government inspection (1,100 for boys; 1,025 for girls; 2,013 for boys and girls).

(2.) *Schools not under Government Inspection.*

1,276 Primary Schools (285 for boys; 527 for girls; 464 for boys and girls).

216 Boarding Schools (63 for boys; 153 for girls).

Total, 1,492 Schools *not* under Government inspection (348 for boys; 680 for girls; 464 for boys and girls).

Total of Elementary Schools, 5,630 (1,448 for boys; 1,705 for girls; 2,477 for boys and girls).

(3.) *Infant Asylums, or Ecoles Gardiennes.*

106 Communal Schools (4 for boys; 14 for girls; 88 for boys and girls).

186 Private Schools under Government inspection (2 for boys; 22 for girls; 162 for boys and girls).

272 Private Schools *not* under Government inspection (3 for boys; 11 for girls; 258 for boys and girls).

Total, 564 Infant Asylums (9 for boys; 47 for girls; 508 for boys and girls).

(4.) *Adult Schools.*

269 Communal Schools (187 for boys; 75 for girls; 7 for boys and girls).

192 Private Schools under Government inspection (67 for boys; 100 for girls; 25 for boys and girls).

786 Private Schools *not* under Government inspection (290 for boys; 376 for girls; 120 for boys and girls).

Total, 1,247 Schools (544 for boys; 551 for girls; 152 for boys and girls).

GRAND TOTAL of Elementary Schools, including Infant Asylums and Adult Schools: 7,441 Schools (2,001 for boys; 2,303 for girls; 3,137 for boys and girls).

II. PUPILS.

(1.) *Schools under Government Inspection.*

Communal Schools 382,484 pupils (235,213 boys; 147,271 girls).

Subsidized Schools 69,160 " (11,705 " 57,455 ").

Private do. under Gov't inspection. 3,577 " (333 " 3,244 ").

Boarding Schools 1,089 " (254 " 835 ").

Total 456,310 pupils (247,505 boys; 208,805 girls).

(2.) *Schools which are not under Government Inspection.*

Primary Schools 95,438 pupils (37,067 boys; 58,371 girls).

Boarding Schools 11,144 " (2,335 " 8,809 ").

Total 106,582 pupils (39,402 boys; 67,180 girls).

Total of Primary Schools 562,892 " (286,907 boys; 275,985 girls).

(3.) *Infant Asylum, or Ecoles Gardiennes.*

Communal Schools.....	11,747 pupils	(5,543 boys; 6,204 girls).
Private do. under Gov't inspection..	23,756 "	(10,787 " 12,969 ").
Private do. not " " "	15,378 "	(6,450 " 8,928 ").

Total number of pupils..... 50,881 (22,770 boys; 28,101 girls).

(4.) *Adult Schools.*

Communa: Schoole	20,224 pupils	(13,190 boys; 7,034 girls).
Private do. under Gov't inspection..	30,015 "	(11,095 " 18,920 ").
Private do. not " " "	128,902 "	(52,756 " 76,146 ").

Total in Adult Schools..... 189,141 pupils (77,041 boys; 102,100 girls).

GRAND TOTAL of pupils under Elementary Schools of every kind, including Infant Asylums and Adult Schools: 802,914 pupils (386,718 boys; 406,186 girls).

III. TEACHERS.

(1.) *Schools under Government Inspection.*

Communal Schools.....	7,943 teachers	(6,128 males, 1,815 females).
Subsidized Schools.....	1,518 "	(203 " 1,305 ").
Private Schools.....	71 "	(5 " 66 ").
Boarding Schools.....	94 "	(24 " 70 ").

Total..... 9,626 teachers (6,360 males 3,256 females).

(2.) *Schools which are not under Government Inspection.*

Primary Schools.....	2,711 teachers	(872 males; 1,839 females).
Boarding Schools.....	979 "	(235 " 744 ").

Total..... 3,690 teachers (1,107 males; 2,583 females).

Total number of teachers in Elementary Schools: 13,326 teachers (7,467 males; 5,839 females).

(3.) *Infant Asylums, or Ecoles Gardiennes.*

Communal Schools.....	171 teachers	(4 males; 167 females).
Private Schools of every kind.....	613 "	(12 " 601 ").

Total..... 784 teachers (16 males; 767 females).

(4.) *Adult Schools.*

Communal Schools.....	743 teachers	(490 males; 253 females).
Private Schools of every kind....	9,639 "	(3,560 " 6,076 ").

Total..... 10,379 teachers (4,050 males; 6,329 females).

GRAND TOTAL of teachers in Elementary Schools of every kind, including Infant Asylums and Adult Schools: 24,479 teachers (11,533 males; 12,935 females).

II. SECONDARY INSTRUCTION (*l'enseignement moyen*).

I. SCHOOLS.

10 Atheneums (*Athénées*).

50 Government Secondary Schools (*écoles moyennes de l'état*).

17 Communal Schools of the 1st class, subsidized by the Government (*collèges subventionnés*).

9 Communal Schools of the 2nd class, subsidized by the Government (*écoles moyennes subventionnés*).

- 2 Exclusively Communal Schools of the 2nd class (*écoles moyennes exclusivement communales*).
- 9 Schools of the 1st class, subsidized by the communes (*collèges patronnés*).
- 7 Schools of the 2nd class, subsidized by the communes (*écoles moyennes patronnées*).
- 26 Schools of the 1st and 2nd class, under authority of the bishops (*établissements épiscopaux, non patronnés*).
- 10 Schools of the 1st and 2d class, under authority of religious congregations (*établissements non patronnés, dirigés par des congrégations religieuses*).
- 11 Jesuit Colleges.
- 5 Private Secondary Schools.
- Total number of Secondary Schools 156.

II. PUPILS.

(1.) *Atheneums.*

1,513 Pupils in the realistic (*professionnelle*) sections.

1,038 " " humanistic section.

632 " " preparatory section.

Total, 3,183 pupils.

(2.) *Government Secondary Schools.*

2,673 Pupils in the schools.

5,319 " " preparatory section.

Total, 7,992 pupils.

(3.) *Communal Schools of the 1st class, subsidized by the Government.*

524 Pupils in the realistic (*professionnelle*) section.

640 " " humanistic section.

358 " " preparatory section.

Total, 1,522 pupils.

(4.) *Communal Schools of the 2nd class, subsidized by the Government.*

327 Pupils in the schools.

561 " " preparatory section.

Total, 888 pupils.

(5.) *Exclusively Communal Schools of the 2nd class.*

111 Pupils in the schools.

297 " " preparatory classes.

Total, 408 pupils.

(6.) *Schools of the 1st class, subsidized by the Communes.*

28 Pupils in the realistic (*professionnelle*) section.

796 " " humanistic section.

271 " " preparatory section.

Total, 1,095 pupils.

(7.) *Schools of the 2nd class, subsidized by the Communes.*

372 Pupils in the schools.

381 " " preparatory section.

Total, 753 pupils.

Of the 52 other Secondary Schools (47 under religious and 5 under private authority) no statistics are published.

The GRAND TOTAL of the pupils in the 104 Secondary Schools above given is therefore 15,841.

III. TEACHERS.

10 Atheneums: 261 professors and teachers.

76 Government and Communal Schools of the 1st class: 836 teachers.

18 Communal Schools of the 2nd class: 180 teachers.

Total number of teachers in the 104 schools under the secular authorities, 1,277.

III. SUPERIOR INSTRUCTION.

I. INSTITUTIONS.

State Universities: 2 (Liege and Ghent).

Free Universities: 1 (Brussels).

Catholic Universities: 1 (Louvain).

	II. STUDENTS.						III. PROFESSORS.	
	Founded.	Philosophy.	Natural Sciences.	Law.	Medicine.	Theology.	Total.	Total.
Ghent.....	1816	24	209	77	107	—	417	50
Liege.....	1817	67	65	113	122	—	367	60
Brussels...	1837	—	—	—	—	—	446	50
Louvain....	1426	98	135	197	208	106	744	49

IV. SPECIAL AND PROFESSIONAL SCHOOL STATISTICS.

- 1 State Agricultural College at Gembloux.
- 2 State Horticultural Schools at Vilvorde and Genbrugge.
- 1 State Forestry Institution at Bouillon.
- 1 Veterinary Institution at Bureghem, near Brussels.
- 1 School of Pharmacy at Brussels.
- 1 Academy of Commerce at Antwerp.
- 3 Schools of Commerce.
- 3 Navigation Schools; 150 pupils.
- 15 Industrial or Technological Schools; 2,293 pupils.
- 68 Workshops, with Schools and Courses of Instruction for Apprentices, &c.; 1,857 pupils.
- 1 School of Arts, Manufactures and Mines at Liege.
- 1 School of Engineering, Manufactures and Horticulture at Ghent.
- 1 Royal Military Academy; 105 pupils.
- 60 Academies and Schools of Art; 236 teachers, 10,607 pupils.
- 1 Institution for the Deaf and Dumb; 1 Institution for the Blind.
- 3 Conservatories of Music.
- 6 Schools for Orphans.
- 3 Schools for Juvenile Criminals.
- 2 Normal Schools for Primary School-teachers; 180 pupils.
- 5 Normal Sections for Primary School-teachers.
- 7 Catholic Normal Schools for Primary School-teachers; 408 pupils.
- 2 Normal Schools for Secondary School-teachers.

V. SUPPLEMENTARY INSTRUCTION.

Belgium is well supplied with institutions and agencies to supplement the instruction given in the regular schools.

PLAN OF BUILDING FOR HARTFORD HIGH SCHOOL.—1869.

THE following minute description of the new building erected for the accommodation of the English and Classical High School in 1868-9, is taken, slightly abridged, from a pamphlet respecting the history, studies, and statistics of the school, issued in 1871, by the Principal, S. M. Capron.

The building is located on the abrupt southern brow of Asylum Hill, overlooking the Park, on Hopkins street, which receives its name from Governor Hopkins, the largest benefactor of the Grammar School (founded under the Act of 1650 and 1672, and incorporated in 1798), which now forms the Classical Department of the High School. The lot is 305 feet front, and 295 feet deep. The building itself in its external dimensions is 100 by 85 feet, and stands about 60 feet back from the street. It is of a mixed architecture, the Norman style, however, predominating, and consists of two stories, with a raised basement, and surmounted with a Mansard roof, making practically four stories. The foundation is of Portland freestone, carried up to the middle of the basement-windows, and overlaid by a water-table of Ohio sandstone. The window-sills and belt-courses are also of the Ohio stone; the window-caps on the front and on the main towers are arched with blocks of the same, alternating with the Portland stone; the others are ornamented brick caps, with an Ohio keystone. Of the Ohio stone, also, are the tablet over the main entrance with the inscription

PUBLIC HIGH SCHOOL,

1868,

and upon the front wall of the building the representation of a half globe in relief, having the outlines of the American continent and meridians carved upon it.

The walls are double, bound together by iron ties, the exterior wall of Boston faced brick, and the whole 20 inches thick, with a four-inch air-space between, for the purpose of intercepting moisture, and promoting a uniform temperature through the building. The mansard roof is covered with a uniform brown slating; the upper roof is tinued, and surrounded by an ornamental cast-iron snow-guard.

In the north-east corner of the building is the observatory tower, 120 feet in height. The observatory itself is an octagonal room about 12 feet in diameter, with windows upon all sides, having an unobstructed prospect in all directions, but not constructed for fixed astronomical instruments. Below this is the clock-room, containing a fine clock with four dials. Another tower, 68 feet high, on the south-east corner, is occupied by the ventilating shaft, around which the boys' staircase ascends.

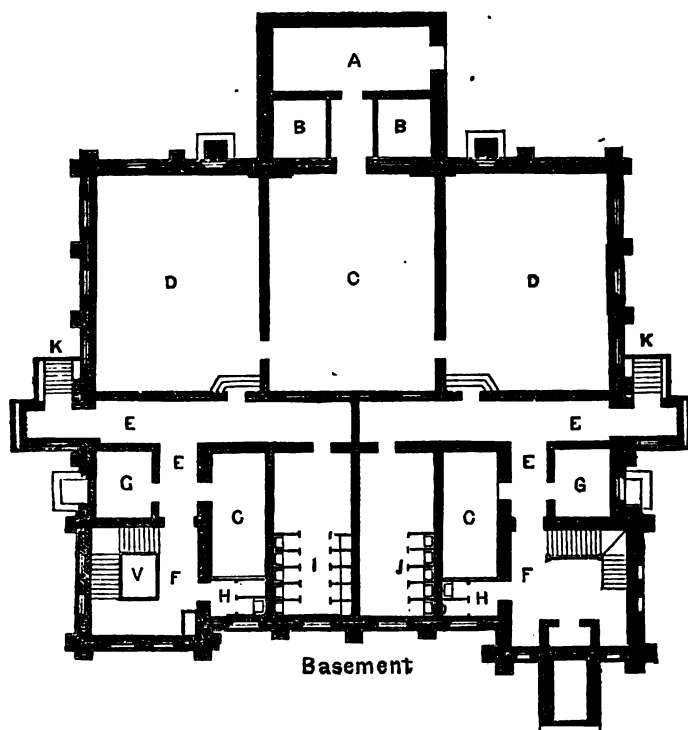
The main entrance is on the eastern front, ornamented with brown stone columns, having foliated capitals and bases of Ohio stone, and is approached by a flight of stone steps with a heavy balustrade. The entrance-doors for the girls are on the north side, one leading into the first story, the other directly beneath into the basement. Similar entrances for the boys are on the south side of the building. The three vestibules are deeply recessed, and paved with a tasselled mosaic of North River stone.

In the basement is a gymnasium for the boys, 30 by 40 feet, and 12 feet high, well supplied with apparatus; also a playroom of the same size for the girls. On this floor, also, are water-closets, janitor's rooms, rooms for coal and ashes, and for storage. The entire floor is paved with brick, and cemented.

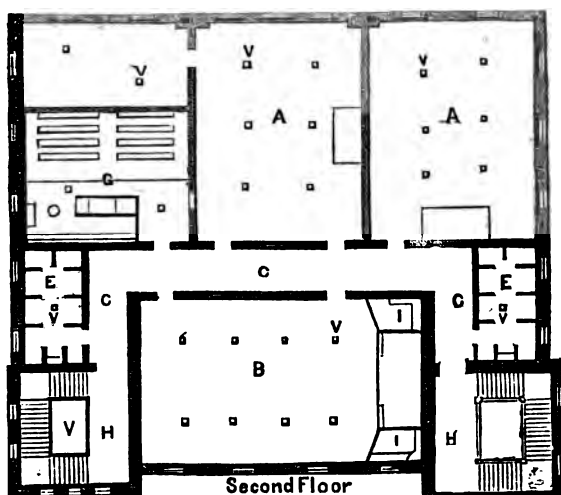
In the first story are four rooms, 30 by 40 feet high, designed for 56 pupils each. One of these is the Principal's room, in which are bell-pulls connecting with gongs in the four stories, and speaking-tubes communicating with different parts of the building. Contiguous to the Principal's room, and between it and the front entrance, is the library and reception-room. On each side of the entrance are wardrobe-rooms for the teachers, supplied with marble basins and other conveniences. The wardrobe-rooms for the pupils on this floor are four



HARTFORD PUBLIC HIGH SCHOOL.



A, Coal Rooms. B, B, Boilers. C, C, Store Rooms. D, D, Gymnasias. E, E, Passage Ways. F, F, Staircase Passages. G, G, Janitor's Rooms. H, H, Teachers' Closets. I, Boys' Closet. J, Girls' Closet. K, K, Entrances to Basement. V, Ventilating Shaft.



A, A, Third Class Rooms. B, Junior Class Room. C, C, Corridors. E, E, Wardrobe Rooms. G, Laboratory. H, H, Staircase Halls. I, I, Philosophical Apparatus. V, Ventilating Shaft. v, v, Ventilating Registers.

in number, two for each sex, 12 by 11 feet, and 7 feet, or half a story, in height, the middle ones being entered from a landing on the staircase. In these rooms the available space for hanging garments, &c., is multiplied by transverse partitions, extending $5\frac{1}{2}$ feet inward from the wall, upon which, as well as upon the wall, are stout iron hooks for clothing, all numbered. These rooms are likewise furnished with iron sinks, having self-closing faucets, fixed wooden stools, and other conveniences.

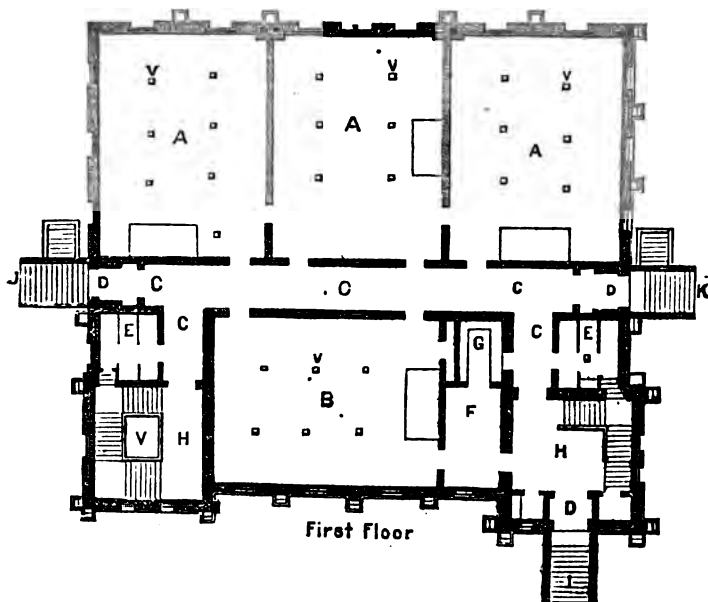
On the second floor are two session-rooms, 30 by 40 feet, for 56 pupils each, and one somewhat larger, 30 by 50 feet, to accommodate 75 pupils, in which are two cases for philosophical instruments, 7 by 6 feet, inclosed with glass frames to the ceiling, so as to be nearly dust-tight. On this floor, also, is the laboratory, 24 by 39 feet, well furnished with chemical apparatus, and provided with sliding window-shutters, so arranged by means of an adjustable panel, that light can be entirely excluded or admitted only through apertures from one-half inch to three inches in width, as may be desired in optical experiments. To enable a class to see experiments more readily, the operating table and pneumatic trough are placed on the level of the floor, from which settees, enough to seat 60 pupils, rise in four tiers upon platforms 5 inches high. In the rear of the laboratory, but not connecting with it, is a large recitation-room, 16 by 30 feet. For the pupils in the second story two wardrobe-rooms are provided, 21 by 11 feet, and of full height, furnished in all respects like those below. The third story, which is in the Mansard roof, is occupied chiefly by the hall or chapel, a large room, 60 by 87 feet, and 22 feet in height, used every morning for devotional exercises, and many times a week for other purposes. It is capable of seating 800 to 1000 persons, and will therefore be useful on public occasions, such as graduation-day, &c. The roof is supported by six trusses, and a large ventilator opens directly to the external air, to be used whenever other means of ventilation are not sufficient. In this room are cabinets of minerals and shells, and connecting with it, as well as with the stairways, are two recitation-rooms, each 16 by 25 feet.

All the partitions from the basement to the third story are of solid brick, and as the two stairways and the various corridors are inclosed within brick walls, the building may be regarded as quite secure against possible danger to the pupils or a crowded assembly in case of fire. The floors also are made partly fire-proof by a thick layer of laths and deafening mortar. The interior of each room is fitted with inside blinds and moulded back linings, and the walls are prepared with slated blackboards. The entire inside finish of the building for doors, windows, wall-lining, &c., is of soft brown ash. The wood is gummed to fill the grain and then oiled. The floors are of southern pine. The corridors are 8 feet, and the stairways 6 feet wide, the latter of easy ascent, well lighted, and strongly built. Four of the session-rooms have windows opening into the corridors, by which a more free circulation of air can be secured when necessary, the lower sashes having only ground glass.

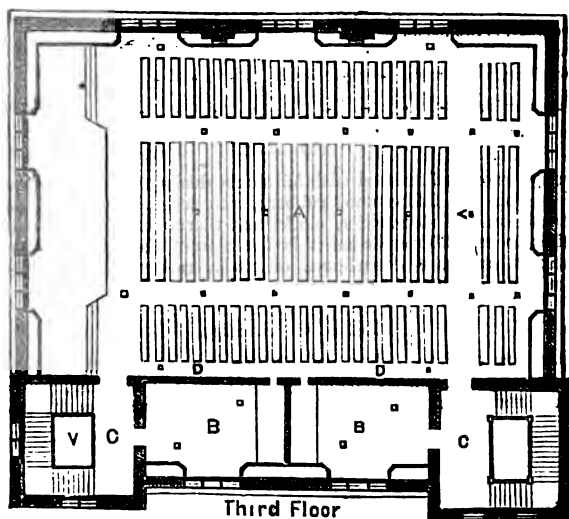
Heating Apparatus.

The building is heated with a low-pressure, steam-heating apparatus. There are four tubular wrought iron boilers, located in a small room just outside the basement, and so arranged that they can be worked conjointly or separately. Connected with these boilers, and in the basement, are thirty-two stacks of radiators, each having a cold air duct of its own, and so constructed that the external surface of the radiators is fully three times as great as the internal surface. Hence the heat is liberated at a much lower temperature than the steam inside; and the cold air from outside, after being strained through these radiators, has a genial warmth imparted to it, without being at the same time robbed of its moisture. From these radiators hot-air flues pass, as from an ordinary furnace, to every room above the basement and to the corridors, being located on the weather-sides of the building, wherever this is possible. The hot-air flues are not interconnected, thus making it possible for the heat to be unequally distributed, but each room has its own separate stack of radiators. The radiators are of cast iron, and in number four hundred and twenty, each having ten feet of radiating surface, or in the aggregate forty-two hundred.

The pressure of steam on the boilers is limited to three pounds per square



A, A, A, Fourth Class Rooms. B, Senior Class Room. C, C, Corridors. D, D, Vestibules. E, E, Wardrobe Rooms. F, Reception Room. G, Library. H, H, Staircase Halls. I, Main Entrance. J, Boys' Entrance. K, Girls' Entrance. V, Ventilating Shaft. v, v, Ventilating Register.



A, Large Hall. B, B, Recitation Rooms. C, C, Staircase Halls. D, D, Cabinets. V, Ventilating Shaft. v, Ventilating Registers.

inch, and double security against explosion is obtained by an automatic regulator and a safety-valve. Return-pipes convey the condensed steam in the form of warm water back to the boiler, thus securing economy of heat; and it is only at intervals of two or three weeks that the boilers need to be replenished with cold water.

The apparatus has been tested one season, and already commends itself for its economy of fuel, but more particularly for the fact that the pure outside air is not deprived of any of its genial, health-giving qualities while being heated. The external surface of the radiators has a temperature of about 160° Fahrenheit, while the radiating surface of a common hot-air furnace is at a temperature of from 800° to 1000° Fahrenheit, a temperature at which the vitality of the air is greatly impaired.

Ventilation.

In the south tower of the building is a ventilating shaft, 8 feet square, reaching from basement to roof, open to the sky, and kept warm by a small furnace, the smoke-pipe of which passes centrally through the entire length of the shaft. To insure perfect security against fire the shaft is lined with corrugated iron. Leading into this main shaft are large ventiducts, 3 by 8 feet, one for each story, constructed of smoothly-planed boards; and every room in the building is connected with one of these ventiducts by several ventilating flues, 10 by 12 inches, opening downward through registers in the floor. Under each school-room there are six or more such flues, and under the large hall twenty-four. Upon placing a smoking match, or any thing of the kind, near one of these registers, it is found that the air is constantly and rapidly passing out through them. Still further to promote ventilation by allowing the air to escape from near the top of the room, as well as through the floor, swivel-blinds are placed over all the doors, through which the air passes freely into the corridors, and up the stairways into the assembly-room, where there are large ventilators in the ceiling, which can be opened or closed at pleasure, and which lead directly to one large ejector placed at the highest point of the roof.

Arrangement of Rooms.

The building is designed to accommodate 409 scholars, distributed as follows :

Fourth Class, in three rooms, (56, 56, 54,)	- - - - -	166
Third Class, in two rooms, 56, 54,)	- - - - -	110
Junior Class, in one room,	- - - - -	77
Senior Class, in one room,	- - - - -	56
Total number,	- - - - -	409

Furniture.

Each school-room is furnished with 56 single desks and chairs of solid oak, the desks having lids falling upon rubber; with teacher's platform, desk, and chairs; waste-basket, step-ladder, clock, and thermometer; also with recitation-benches to seat 30 pupils, as it is the plan of the school to have each teacher take a separate department of study, rather than give the entire instruction in various branches to one particular class.

Cost of the Building.

The entire cost of the building and grounds has been \$159,247.50; the lot, including grading and fences, costing \$39,871.28; the building, \$101,778.75; the furniture and apparatus, \$10,503.31; the heating apparatus, \$7,094.16.

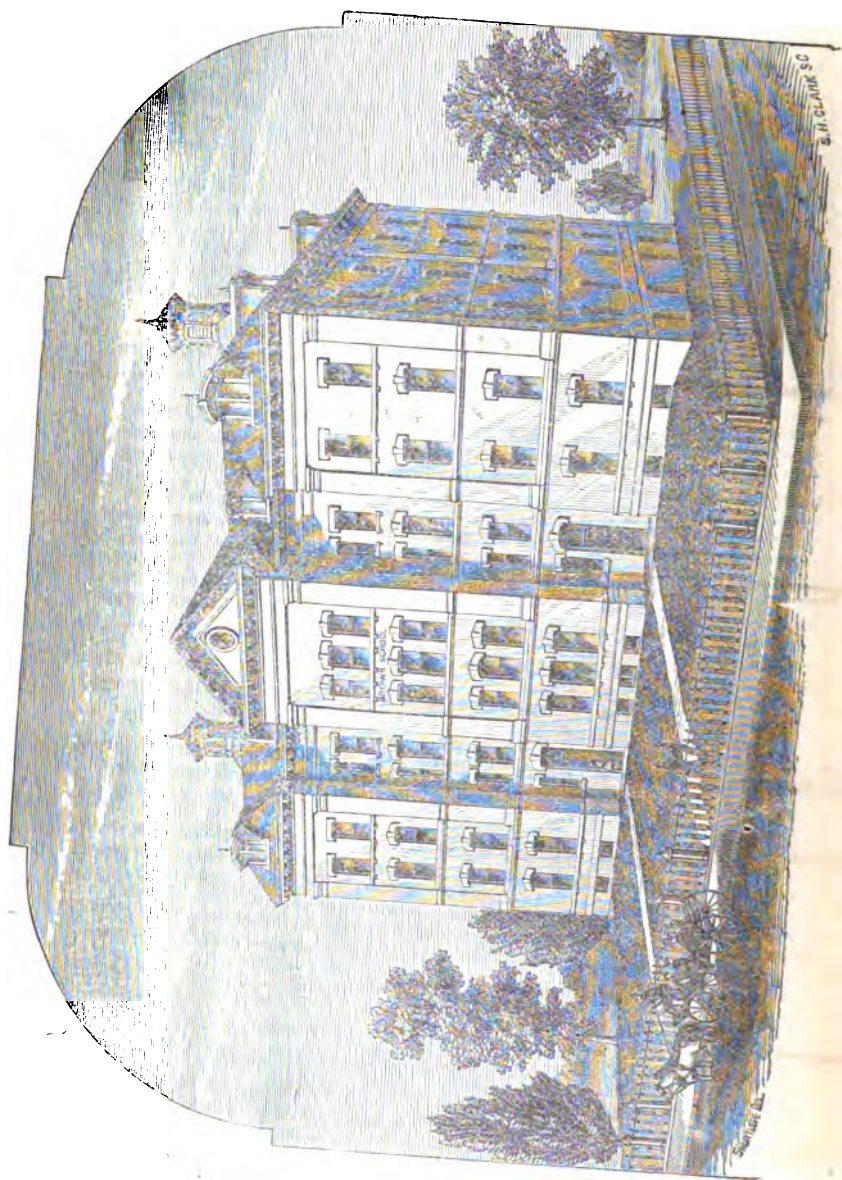
PLAN OF SCHOOL HOUSE IN CENTER DISTRICT—HARTFORD.

In 1841 Rev. Horace Bushnell described the 'Old Stone Jug,' as the venerable predecessor of the Brown School House was termed, as follows:—

We begin our exposition by asking you to go with us and take a deliberate survey of the heart of our system, the Center School (as it is called) of the city. You pass into a short narrow street, which is the gorge of the City Market; as if the stomach and the head of the city were going to a common supply. In wet weather its pavement is a deep liquid substance; in dry, it is sublimed to mix with the air as before it did with the water. The school building is a large barrack-looking structure of brick and stone, with the gable to the street and standing close upon the sidewalk. In the rear is a small pen of low ground, submerged for the most part in water, during the wet seasons of the year, which is the airing place of the establishment. On the right or south side, at the distance of 6 or 10 feet, is a blacksmith shop, the tops of whose chimneys, always discharging a thick cloud of smoke, from the bituminous coal, are just upon a level with the upper windows of the building; which windows, being open in the summer (if it can be endured) to catch the cool south wind, which is the principal breeze of the summer months, receive the black sirocco slanted from the chimney tops. On the left or north side, at a narrower distance, is a high board fence; and five or six rods farther off stands, facing with its broad side, a long narrow tenement, that stretches itself out "full many a rood" like Satan or the poet's burning lake—to cover the cellar and the nine-pin alley under it. And the ring of the hammers on one side is not more constant or audible than the rattle of the pins on the other. Here, then, is the principal public school of our intelligent, liberal, humane city. You enter and find it filled with children, especially in winter, from the cellar below to the garret above. From four to six hundred are here collected. The rooms are all very low, and the wall of a dingy brown color. Here and there you will see a rude board partition, which the teachers have put up at their own expense, for the better assortment and more easy management of the pupils. These are seated at their task and, of necessity, in very close order, for the rooms will scarcely contain them when stowed as economically as possible. In the summer, as we just said, the rooms are ventilated with smoke; in the winter, not at all, but the children are ventilated instead, by an occasional airing in the pen just mentioned. Here, for instance, are a hundred and fifty children, confined in a low room from two to four hours; which is, to all practical intents, as if they were sent into a huge bottle of the same contents, and corked in. They are expiring carbonic acid from their lungs, at every breath, and from every pore of their skins. In a short time the air becomes thoroughly mixed with this deadly gas,—the same that is found at the bottom of wells and other like receptacles—and before the sitting is over the dull eyes of the poor children, a yawn of stupefaction here and there visible, and a head dropped in sleep, give the clearest tokens that the poison is taking effect! Of course it will be needful now (whether done or not) to apply the stimulus of the whip, to wake up for the want of any stimulus or life principle in the air! Inasmuch, however, as the freezing of a part of the school is better than the suffocation of the whole, a window was kept up, we are told, a good part of the last winter, blowing directly into the room!

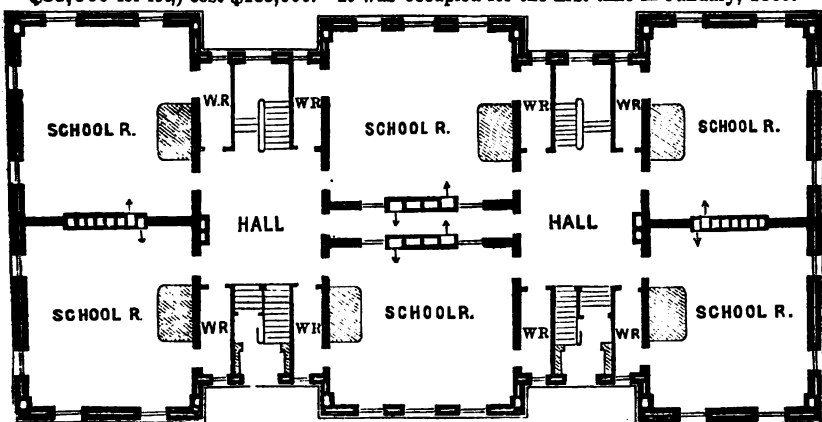
Is there injustice done by our picture? Let any citizen go to the spot and view it for himself, and see if every thing does not stand exactly as we have set it forth. Let him look for a shaded ground or a fair ceiling or a ventilation—any thing to relieve the uncomfortable, vulgar, barbarous character of the establishment. Is this the place, we ask, to teach morality or to clear a child's intellect? Could any person, knowing what dominion outward things have over the mind, conceive it possible that order, purity, sweetness of temper, cheerful application should grow up here? Were it proposed, to make a retreat for the insane, of this establishment, every man would see the absurdity of the plan. The city poor could not be consigned to it, without violence to the humane feelings of the citizens. On what principle, we then ask, is it thought to be a fit place for the education of our sons and daughters.





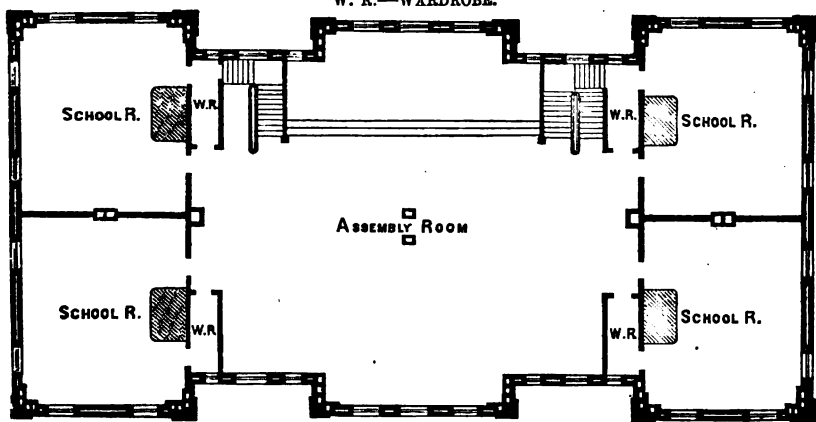
PLANS OF BROWN SCHOOL, HARTFORD, CONN.

THE lot on which the Brown School in the Center District stands, is 300 feet on Market street, and 320 feet on Talcott street, and cost, including grading, iron fence, and sidewalks, \$35,000. The building is four stories high, besides the basement, 140 feet long by 70 wide, and contains, in addition to a hall for the public exercises of the whole school, 22 school-rooms, each 32 by 28 feet, and all furnished with single desks and chairs for 56 pupils, or a total of 1,200. To each school-room there is a clothes-room for the pupils, and another for the teachers, supplied with water. The whole building, including corridors, is heated by Brown's Hot-Water Apparatus, and is ventilated by openings from each room into shafts, discharging into two flues, which are carried above the roof. The material and workmanship are of the first quality, and the whole structure (including \$25,000 for furniture and heating apparatus, and \$35,000 for lot,) cost \$185,000. It was occupied for the first time in January, 1869.



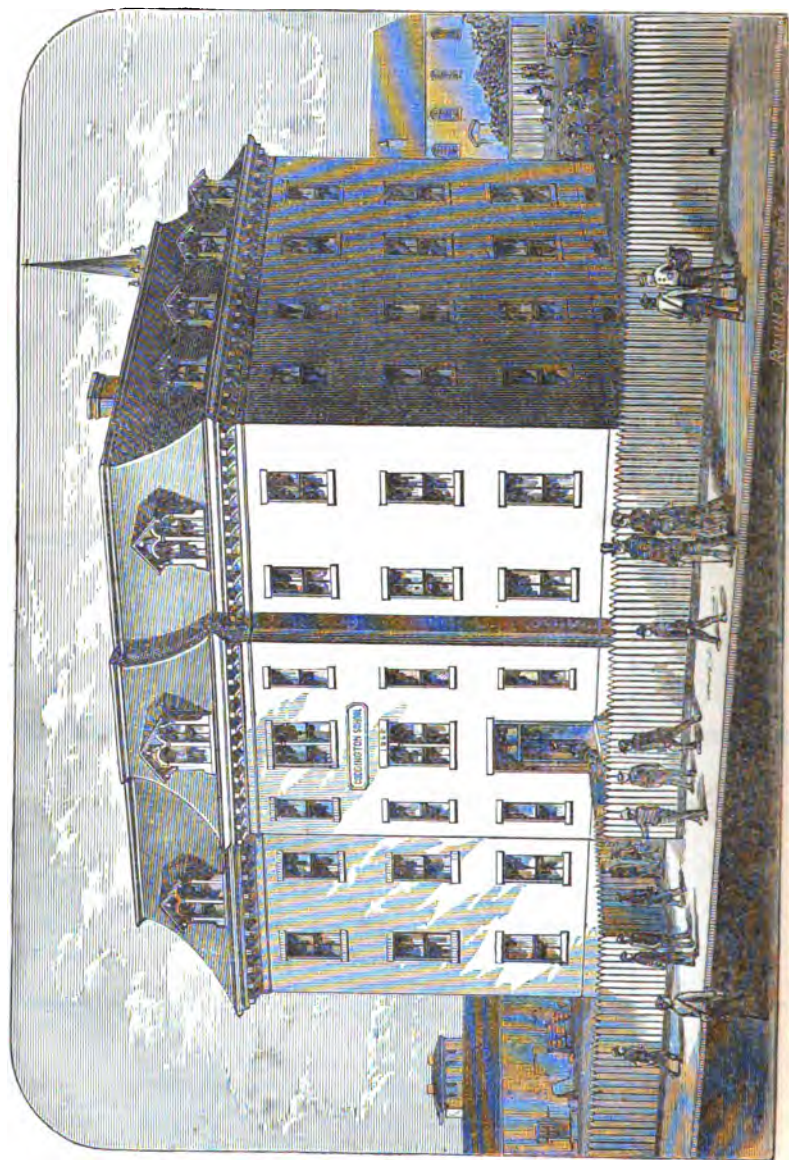
PLAN NO. 2.—FIRST, SECOND, AND THIRD FLOORS.

W. R.—WARDROBE.



PLAN NO. 3.—FOURTH FLOOR.

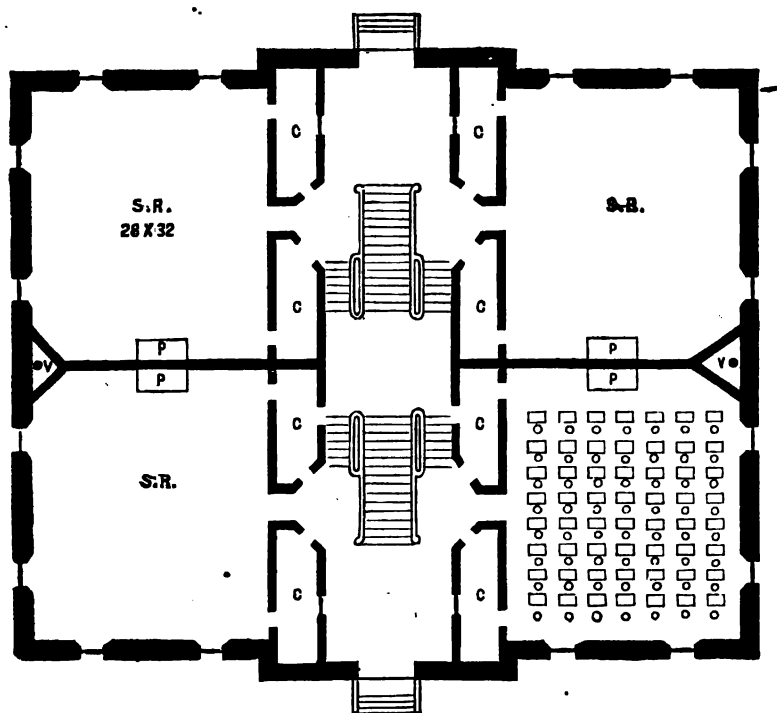
W. R.—WARDROBE.

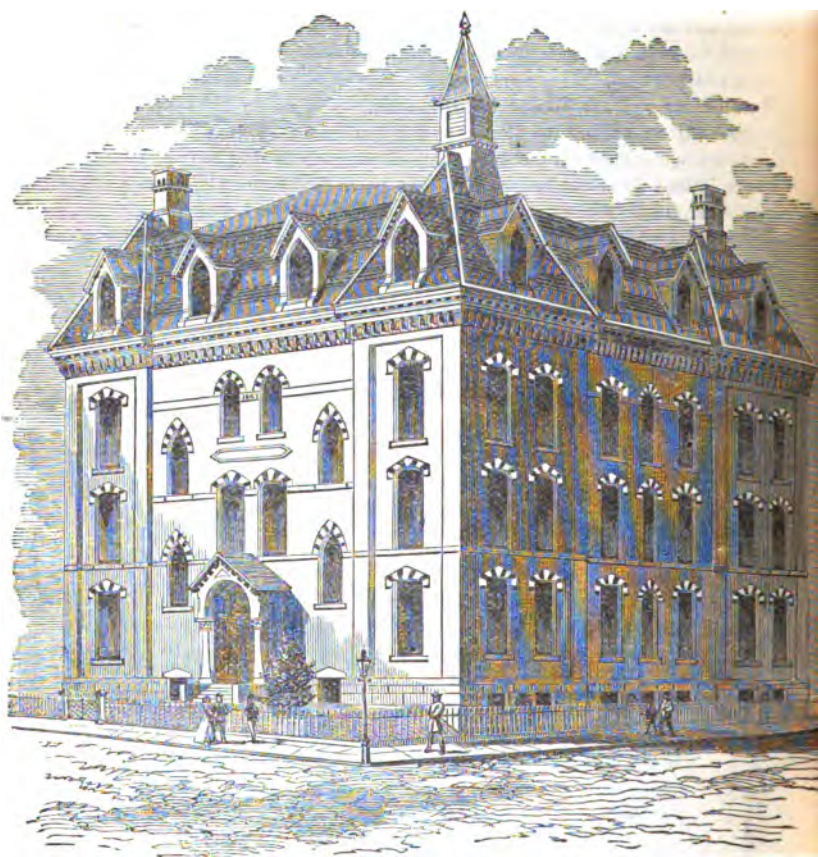


PLANS OF CODDINGTON SCHOOL, NEWPORT, R. I.

THE extreme dimensions of the building erected in 1869, for the Coddington School, so called in honor of William Coddington, first Governor of Rhode Island, are 85 feet front by 73 deep, with a central projection in front and rear of ten feet six inches. The foundation, water-tables, window and door caps and sills, are of brown stone, and the walls of Danvers pressed brick. On each of the three floors are four school-rooms (S. R.), each 28 by 32 feet, and 13 feet in the clear, with two clothes rooms 14 feet by 5. Each room is furnished with 56 single desks and chairs from the manufactory of W. O. Haskell & Son, Boston. The inside doors swing both ways, closing without noise. All the doors for leaving the building open outward. Two large triangular shafts (V), communicating with each room at top and bottom by registers, extend from the basement to the galvanized iron chimney tops. The iron smoke-pipes from four furnaces in the basement, and the hot-air pipes, pass through these shafts, and maintain constantly, when the season demands closed windows, a strong upward current. Each furnace heats a tier of rooms.

FIG. 2.—PLAN OF FIRST AND SECOND FLOORS.





THAYER STREET PUBLIC SCHOOL, PROVIDENCE, R. I., 1868.

Erected and furnished in 1867, at a cost of \$76,000 exclusive of the site.

PLANS OF THE THAYER STREET SCHOOL-HOUSE, PROVIDENCE, R. I.

THE THAYER STREET SCHOOL HOUSE, dedicated to the uses of the Public Schools of Providence by appropriate exercises, Jan. 2, 1868, is situated on the corner of Charles Field and Thayer streets, the north-west corner lot, which contains about 20,000 square feet. It is designed to accommodate the second and third districts, comprising the second and third wards. This will effect the consolidation of the Prospect street and the Arnold street Grammar schools, superseding the teachers and machinery of one Grammar School, and lessening by about \$3,000 the annual expenses of the school department. The plan rendered necessary further accommodations for intermediate and primary scholars, which have been provided for by a new school-house for these classes, on the corner of Thayer and Meeting streets, with seats for 200 scholars.

The building is a very fine one, and presents a grand appearance from all points of observation. It measures seventy-six feet by eighty-nine on the ground. It is heated by four of Lawson's furnaces in the cellar. Its architecture is chaste, and the different materials of walls and trimmings of the exterior have been disposed in the most happy manner for effect.

The underpinning is red Gloucester granite, overlaid by a water table of Connecticut free-stone. The walls are of Danvers pressed brick, laid in dark mortar, carried up double, twelve inches thick, with an air-chamber between, to intercept moisture, and shut off the influence of the exterior temperature, whether it be extreme heat or intense cold. The window sills and belt courses are of Nova Scotia sandstone. The window caps present a variegated appearance, being of stone, blocks of Gloucester granite and Connecticut freestone alternating. The cornice is arcaded, being constructed of brick and Nova Scotia sandstone, with gutters of iron. The roof is steep, covered with slate in alternate courses of black and green. This has a fine effect, and elegantly sets out the entire building. There are four dormer windows on each side. Towers rise at each corner, on one of which is the bell.

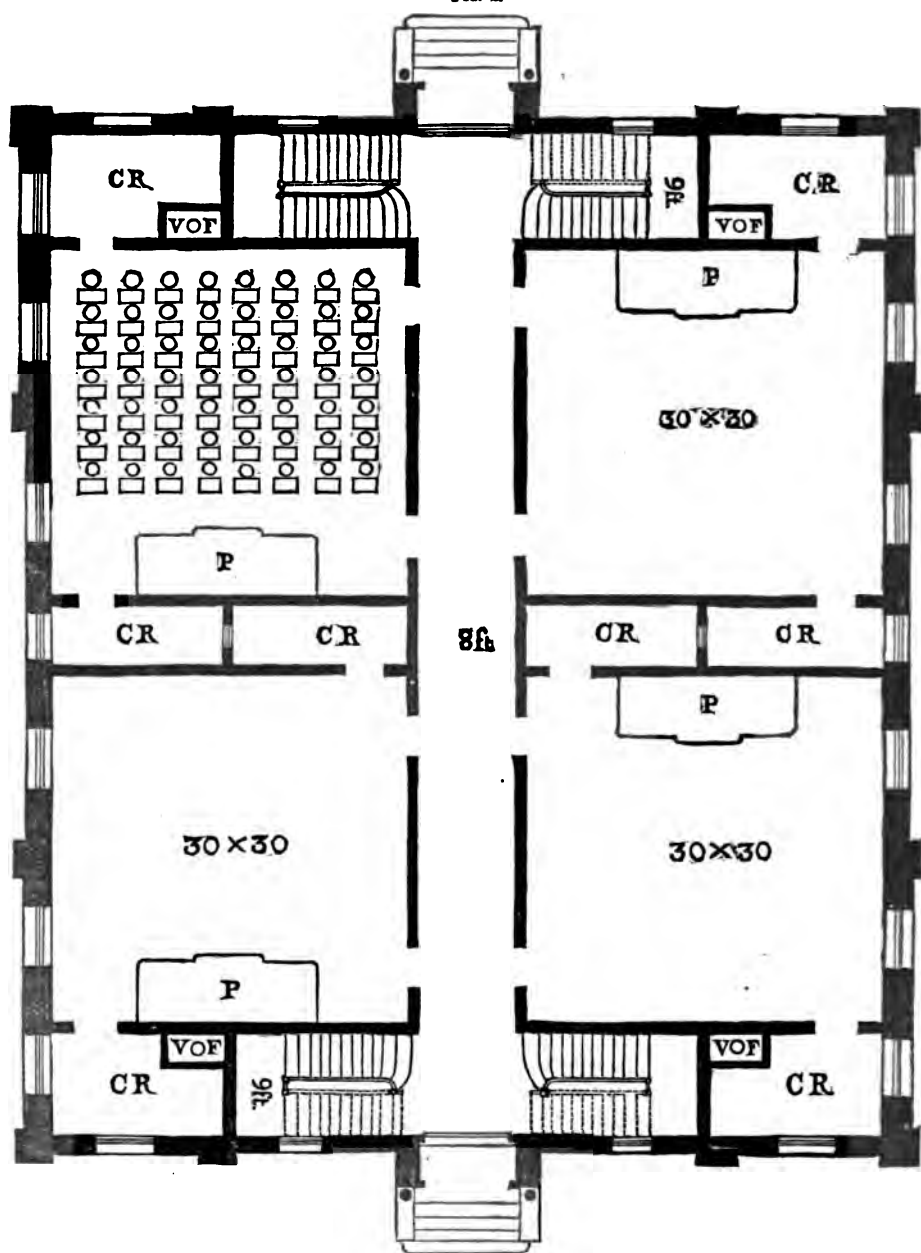
The basement extends under the entire building. It contains four furnaces, and the bottom is cemented to permit the use of the room by the girls for purposes of play in wet weather.

The entrances are from the north and south ends, the principal one being from Charles Field street. The steps are broad, and leading to a porch which opens into the hall extending through the building.

The upper stories are reached by four broad stairways; special attention has been paid to their construction, that they may be entirely safe in all respects; and they are separated from the main rooms by a brick wall, as a protection against fire. There are no open banisters in which the children may be caught at risk of limb, neither a pit through which they may be precipitated in case of a panic, causing a sudden rush. These stairways leading to the school-rooms, open into halls, as on the first floor, running through the building.

The school-rooms on the three floors all correspond in size and finish, and are arranged, two on each side of the halls. The scholars in those on the east side face to the South, which lets the light fall upon the desks from the left. In the west rooms the scholars will face to the North; thus, in these rooms, obtaining light from the left. Inside blinds of cherry are provided, by which the light

FIG. 2.



FIRST FLOOR.

C.R.—Clothes-rooms.

V.F.—Ventilating flues.

P.—Platforms.

may be regulated at will. This seating of the scholars is an important arrangement; for if light be admitted to the front, or on three sides, as is often the case, there is danger that the eyesight of the scholars may be impaired, inducing short-sightedness.

The desks are of the ordinary kind. The seats, however, have been constructed with special reference to the comfort of the scholars. They are wooden chairs; the front of the bottom is slightly elevated, perhaps three-fourths of an inch, inclining the pressure of the body backward, and the upright center-piece which is to support the back is curved forward so as to fit the small of the back and support the spinal column as it naturally curves inward at that point.

Each of the school-rooms is $30 \times 29\frac{1}{2}$ feet and 14 feet high, with desks for 56 scholars. There being twelve of these rooms, the capacity of the house, therefore, will be 672 seats. These rooms, as is the entire building, are finished in hard pine, being ceiled up to the windows. Each school-room has a wide, black board on its four sides, with mouldings above and below, with recesses in the walls beneath, for crayons and sponges.

There are two doors to each room, opening from the halls, and cloak-rooms for the boys and girls distinct from each other, which can be reached only by passing through the school-room. This arrangement keeps the scholars under the eye of the teacher from their entrance into the room till leaving it. It will be readily seen that this will be a check upon disorder, besides having the clothing of the scholars securely put beyond theft, should any one accidentally get access to the building during school hours.

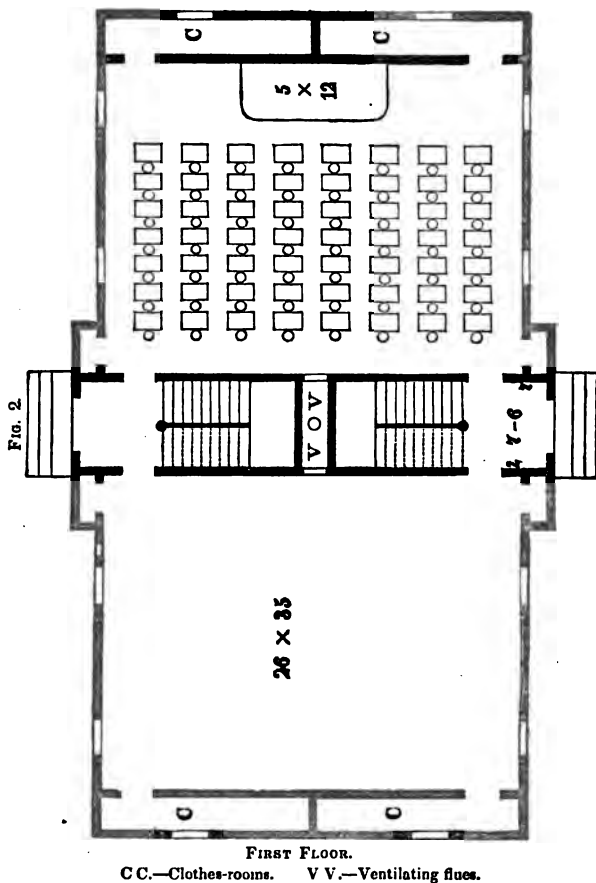
The doors are of pine, with butternut panels and black walnut moldings, producing a pleasant effect.

The hall is on the fourth floor, 65×62 feet, 18 feet in the clear, and by the dormer windows which are on all sides, is very airy and pleasant. The platform is on the east side. The seating is by settees, 130 in number. The capacity of the hall is such that 800 persons can be seated for any general exercises of the whole school.

Careful attention has been paid to the ventilation of the school-rooms. The hot air is admitted by registers in the walls. Ample provisions have been made to change the air where it becomes overheated, or impure by repeated breathings. Four ventilators, $4\frac{1}{2} \times 3\frac{1}{2}$ feet, run from the basement through the roof, smoothly plastered on the inside. Through each of these runs a cast-iron smoke pipe, into which the smoke and gas from the furnaces are discharged, along with the heat naturally carried off by the draft. This raises the temperature of the ventilator according to the amount of fire in the furnaces, several degrees above the temperature of the school-rooms. Registers from each room, one near the ceiling and one near the floor, open into these ventilators, and as the temperature there is in excess, a draft is created which draws the air from the school-rooms speedily; indeed, the air throughout the rooms may be changed in a very few minutes, fifteen at the outside. To provide for the contingency when there is no fire, or but a slight one in the furnaces' stoves are placed in each ventilator, in which fires may be lighted to create a draft and make the ventilators operative. This method, in effect, is using four immense exhaust pumps for changing the air and supplying that which is pure and fit for respiration, and is unquestionably the best system of ventilation ever yet devised.

PLAN OF PRIMARY SCHOOL-HOUSE.

THAYER STREET, PROVIDENCE, R. I.



THE building represented in Figs. 1 and 2, was erected in 1868, and is designed for an Intermediate and Primary School, and is 70×35 feet; and is divided into four rooms, which will seat from fifty-six to sixty-four scholars each. The windows are large, and with inside blinds, so that there will usually be light enough from either side, when one half of the blinds are closed. It will be seen that the clothes-rooms open into the school-room. This has been found, by experience, to be an important arrangement to secure the safety of the clothes, and also to prevent trouble and confusion among the pupils when going out and coming in.

The ventilation is secured by a ventilating shaft (2×3 feet) extending from the cellar into the cupola which surmounts the roof, and within this shaft is a smoke-pipe, by which the air in the shaft is made warmer than in the school-rooms, and an upward draft is thus secured for all three rooms.

ENGLISH PEDAGOGY IN THE NINETEENTH CENTURY.

FREDERICK WILLIAM TEMPLE.

FREDERICK W. TEMPLE, D. D., was born Nov. 30, 1821, and educated at the Grammar School at Tiverton, and Oxford (Balliol College), where he took his degree in 1842 as a double first class. He was elected Fellow and Tutor, and after his ordination in 1846, became Principal of the Training College for masters of Pauper Schools at Kneller Hall in 1848. This post he resigned in 1855, to become Inspector of Schools, in which he continued till 1858, when he was made Head Master of Rugby School, from which high position he was promoted to the See of Exeter, to succeed Bishop Philpotts. His evidence and opinions on the studies of secondary schools had great weight with the Public Schools Commission, which reported to Parliament in 1864. He was the author of the first of the seven "*Essays and Reviews*" which caused some controversy as to his orthodoxy at the time (1860), and of a volume of *Sermons Preached in Rugby Chapel* in 1858-60.

*Greek and Roman Language and Literature.**

I can not suggest any change in our system of education. By degrees the present system may be much improved. But I understand the Commissioners to ask whether I wish to suggest, not such alterations as we can make for ourselves, and I trust are endeavoring to make, but such as would require superior authority to introduce: the total or partial surrender, for instance, of the classics as the staple of instruction. Such alterations I can not advise.

The studies of boys at school fall under three heads,—literature, mathematics, and physical science. For every branch of each of these studies very strong arguments may be adduced. A boy ought not to be ignorant of this earth on which God has placed him, and ought therefore to be well acquainted with geography. He ought not to walk in the fields in total ignorance of what is growing under his very eyes, and he ought therefore to learn botany. There is hardly an occupation in which he can be employed where he will not find chemistry of service to him. Mathematics rule all other sciences, and contain in themselves the one perfect example of strict logic. It is absurd that an English youth should be ignorant of the history of England; equally absurd

* Extract from communication to the Public Schools Commission, 1864.

that he should not be well acquainted with its noble literature. So each study in its turn can give reasons why it should be cultivated to the utmost. But all these arguments are met by an unanswerable fact—that our time is limited. It is not possible to teach boys every thing. If it is attempted, the result is generally a superficial knowledge of exceedingly little value, and liable to the great moral objection that it encourages conceit and discourages hard work. A boy who knows the general principles of a study, without knowing its details, easily gets the credit of knowing much, while the test of putting his knowledge to use will quickly prove that he knows very little. Meanwhile he acquires a distaste for the drudgery of details, without which drudgery nothing worth doing ever yet was done.

It is therefore necessary to make a choice among these studies, to take one as the chief and to subordinate all others to that. It is an accident, but I think a most fortunate accident, that in England the study thus chosen to take the lead in our highest education has been that of the classics. I should not be prepared to maintain that the only possible system of education for all ranks in this country is one based on the classics. But I assume that the schools commonly called public schools are to aim at the highest kind of education; and to give that education, I think the classics decidedly the best instrument. When we have to choose between literature, mathematics and physical science, the plea advanced on behalf of the latter is *utility*. They supply a man with tools for future work. Man's chief business, it is said, is to subdue nature to his purposes, and these two studies show him how. Those who use this plea seem to forget that the world in which we live consists quite as much of the men and women on its surface, as of the casts of its constituent materials. If any man were to analyze his own life he would find that he would have far more to do with his fellow-men than with any thing else. And if, therefore, we are to choose a study which shall preëminently fit a man for life, it will be that which shall best enable him to enter into the thoughts, the feelings, the motives of his fellows.

The real defect of mathematics and physical science as instruments of education is that they have not any tendency to humanize. Such studies do not make a man more human, but simply more intelligent. Physical science, besides giving knowledge, cultivates to some degree the love of order and beauty. Mathematics give a very admirable discipline in precision of thought. But neither of them can touch the strictly human part of our nature. The fact is that all education really comes from intercourse with other minds. The desire to supply bodily needs and to get bodily comforts would prompt even a solitary human being—if he lived long enough—to acquire some rude knowledge of nature. But this would not make him more of a man. That which supplies the perpetual spur to the whole human race to continue incessantly adding to our stores of knowledge that which refines and elevates and does not merely educate, the moral nor merely the intellectual faculties, but the whole man, is our communication with each other, and the highest study is that which most promotes this communion, by enlarging its sphere, by correcting and purifying its influences, by giving perfect and pure models of what ordinary experience can for the most part only show in adulterated and imperfect forms.

The same thing is said in another way when we assert that that study is the chief instrument of education which makes a man in the fullest sense a Chris-

tian gentleman. Taking this word in its highest and best meaning, it certainly represents the aim of the highest education. Now of course it is quite certain that more than half of all education in any given instance, comes not from the studies but from the teacher. If teachers at school and parents at home are gentlemen, they will do more to make the boys the same than any study can do. But this perhaps would remain the same whatever study we make the chief; meanwhile so far as the study selected can influence the result,—and it would be absurd to deny that its influence must be great—that study will do so most which most familiarizes a boy's mind with noble thoughts, with beautiful images, with the deeds and the words which great men have done and said, and all others have admired and loved. So again all studies up to a certain point help each other. I have no doubt at all that a boy of eight, who has been well instructed in arithmetic, will find it easier to learn Latin than one who has not. And so physical science will prepare the way in some degree for mathematics. Every study has a considerable power of helping every other study. But among all the possible studies this power appears to me preëminently to belong to those which I have classed under the general name of literature. I believe the kind of education given in a public school is preëminently that which fits a youth to take up any study whatever. When I had to deal with a very different class of minds, the students of Kneller Hall, I found that studies of the sort included under the name of literature did more to fit them for all other studies than any thing else that I could teach them. My experience here is still the same. I once asked a tradesman who had himself been at Rugby School, and was intending to send his son, whether he had learnt any thing here that was of use to him afterwards. He answered: "I was at school several years, and I have never regretted it. I learnt there what I don't think I could have learnt as well any where else, how to learn any thing I wanted." The Principal of Wellington College, who has peculiar facilities for deciding this question, has come, I believe, to the same conclusion. The studies pursued at a public school, and the method of study, do not always give a boy the precise thing that he wants for immediate use in after life, but they give a training which enables him to study almost any thing afterwards with ease. I must repeat what I said above, that I am not now considering whether other systems of education may not be needed in this country; but whether it would be wise to change the system in use in our public schools. If the staple of education is to be found in the different branches of literature, the classics in a perfect system must be the substratum. In the first place, modern literature is not fully intelligible, except to those who have studied the classics. A student of mathematics does not find it any help to him to study the early writers on the science. No one is aided in learning the differential calculus by going back to fluxions. Nor will the study of physical science gain much by beginning with the writings of earlier discoverers. But literature can only be studied thoroughly by going to its source. Modern theology, modern philosophy, modern law, modern history, modern poetry, are never quite understood, unless we begin with their ancient counterparts.

In the next place, the perfect and peculiar beauty of the classical literature will always put it at the head of all other. Thirdly, the classic life contains, as Mr. J. S. Mill has remarked, "precisely the true corrective for the chief defects of modern life. The classic writers exhibit precisely that order of virtues in

which we are apt to be deficient. They altogether show human nature on a grander scale, with less benevolence, but more patriotism,—less sentiment, but more self-control; if a lower average of virtue, more striking individual examples of it; fewer small goodnesses, but more greatness, and appreciation of greatness; more which tends to exalt the imagination and inspire high conceptions of the capabilities of human nature." If, as every one must see, the want of affinity of these studies to the modern mind is gradually lowering them in popular estimation, this is but a confirmation of the need of them, and renders it more incumbent on those who have the power, to do their utmost to aid in preventing their decline. Lastly—and this is a practical consideration of the greatest weight—the classical system of education has been in possession of our great schools for two centuries; and in consequence, the best method of using classical learning for purposes of education is so far understood, that it is comparatively easy to find thoroughly efficient masters. How far from easy it is to find thoroughly efficient masters of the modern languages, every one knows. Men who can teach French or German can be found; but it is exceedingly difficult to find any man who can so teach French and German as at the same time to form the minds and characters of the learners.

One obvious reply may be made to all this: that many boys need something more than the cultivation of their faculties. The necessities of their life require them to be furnished, over and above this, with knowledge which can be immediately applied to the business of life. Even if they have learned how to learn, others, who have already got the peculiar learning required, will have the start of them, which, in this age of competition, can never be made up. This is to some extent true, and I think it clear that in this country there is room for other systems of education besides the classical. I should be glad to see great schools established in which Greek was left optional, or nearly so, and Latin, French and German made the staple of instruction, while a little more time was allowed to mathematics and physical science. The education would not be so good, but would be more ready for use; and though not equal to the classical, need not fall short of it. Such a school, or very nearly such a school, is Wellington College; and the modern departments of Cheltenham and Marlborough Colleges approach the same idea. But I think it would be most unwise, because such schools are needed, to attempt to convert the public schools to the purpose; nor should I consider it wise to follow the Cheltenham and Marlborough example, by attaching modern departments to the public schools. The classical work would lose; the other work would not gain.

ROBERT LOWE.

ROBERT LOWE was born in Bingham in 1811, and educated at Winchester, and at University College, Oxford, where he graduated in high honors in 1833; was elected Fellow of the Magdalen in 1835, and became tutor at Oxford. After being called to the Bar, by the Society of Lincoln's Inn in 1842, he practiced law in Australia, where he sat in the council of that colony from 1843 till 1850, when he returned to England. In 1852 he became joint Secretary of the Board of Control from 1852 to 1855; Vice-President of the Board of Trade and Paymaster General in 1855, and Vice-President of the Education Board from 1859 to 1864. He was elected member from Kidderminster in 1852 and for Calne in 1859. He was made Chancellor of the Exchequer under Gladstone in 1868. He was the author, or at least the main advocate, of the policy of paying out the appropriations for primary education according to results in teaching the elementary branches, ascertained by the examination of the schools by authorized inspectors. In Parliament, and with his pen, he ranks with the advocates of a modern curriculum.

CLASSICAL EDUCATION.*

It seems to me, if one can form an abstract idea of what ought to be taught, that it is to teach a person every thing important to know, and, at the same time, to discipline his mind. But as the period during which education can be communicated is very short, we must qualify that view, I think, by saying that the business of education is to teach persons as much of that which it is important they should know as can be taught within a limited time, and with reference to the ordinary faculties of mankind, and that also in so doing care should be taken to discipline the mind of the pupil as far as possible. That is what I conceive to be the object of education. Well, that being so, you see a question arises of very great difficulty—What is it most important that persons should know?—and till we can answer that question, we can not satisfactorily solve the question which I am now proposing to consider—What is the education that ought to be given to the middle and upper classes of this country? We must invent for ourselves a sort of new science—a science of weights and measures; of ponderation, if I may coin a word—in which we shall put into the scales all the different objects of human knowledge, and decide upon their relative importance. All knowledge is valuable, and there is nothing that it is not worth while to know; but it is a question of relative importance—not of decriing this branch of knowledge, and praising and puffing that—but of taking as far as possible the whole scale of human knowledge, and deciding what should have priority, which should be taught first, and to which our attention should be most urgently directed. That is a problem, you will allow, of most enormous difficulty. I can only suggest one or two considerations

* *Primary and Classical Education: An Address at Edinburgh, November 1, 1867.* By Rt. Hon. Robert Lowe, M. P.

which may assist us in solving it. I think it will be admitted by all who hear me that as we live in a universe of things, and not of words, the knowledge of things is more important to us than the knowledge of words. The first few months and the first few years of a child's existence are employed in learning both, but a great deal more in making itself acquainted with the world than with the knowledge of language. What is the order of Nature? Nature begins with the knowledge of things—then with their names. It is more important to know what a thing is, than what it is called. To take an easy illustration, it is more important to know where the liver is situated, and what are the principles which affect its healthy action, than to know that it is called *jecur* in Latin or *ἥπαρ* in Greek. I go a little farther. Where there is a question between true and false, it is more important to know what is true than what is false. It is more important to know the history of England than the mythologies of Greece and Rome. I think it more important that we should know those transactions out of which the present state of our political and social relations have arisen, than that we should know all the lives and loves of all the gods and goddesses that are contained in Lempriere's dictionary. And yet, according to my experience—I hope things are better managed now—we used to learn a great deal more about the Pagan than the Christian religion in the schools. The one was put by to Sunday, and dismissed in a very short time; the other was every day's work, and the manner in which it was followed out was by no means agreeable. The slightest slip in the name or history of any of the innumerable children of the genealogy of Jupiter or Mars was followed by a form and degree of punishment which I never remember being bestowed upon any one for any slip in divinity. Then, gentlemen, I venture to think, as we can not teach people every thing, it is more important that we should teach them practical things than speculative things. There must be speculation, and there must be practice, but I think if we can not do both, we should rather lean to the practical side. For instance, I think it more important that a man should be able to work out a sum in arithmetic, than that he should be acquainted with all the abstract principles of Aristotle's logic, and that the moods of a syllogism are not so important as the rule of three, practice, and keeping accounts. If we must choose in the matter, we should lean to the practical side. One more rule I will venture to submit—they are four in all—if we must choose in these matters, the present is more important to us than the past. Institutions, communities, kingdoms, countries, with which we are daily brought into contact, are more important than institutions, kingdoms, and countries that have ceased to exist for upwards of 2,000 years. I will pursue this topic no farther.

Having made these general observations as my little contribution towards the new science of ponderation or measurement which I am anxious to found, to enable us to compare one branch of knowledge with another, I will proceed, with your permission, to inquire how far the education of the middle and upper classes corresponds with this idea. Without going into detail, I may say the principal subjects of education—I don't say in Scotch Universities, for you are more liberal than we are in England, though even in your universities not quite sufficiently so—in Oxford and Cambridge are analytical mathematics, and what are called the learned languages—viz., Latin and Greek.

Now I admit that mathematics are a most admirable study, and are calcu-

lated to train the mind to strict habits of reasoning, and habits of close and sustained attention. But these are the synthetical, not the analytical mathematics. Consider to what this form of study trains a man. It educates him to approach a subject analytically. He takes his conclusion for granted, and then investigates the conditions upon which it rests. Well, that is not a good way of reasoning. The best way of reasoning is to fix upon principles and facts and see what conclusion they give you, and not to begin with a conclusion and see what principles or facts you may be able to pick up in order to support it. Then any one who has gone through this training, knows that you go by steps. One understands step by step, but the whole very often eludes our grasp, and we find ourselves landed in a conclusion without knowing how. We see each step we have taken, but we see not how we arrived at the conclusion. This is a system in one sense too easy, because each step is easy; and in the other it is too difficult, because it is an immense strain on the mind to grasp the whole effect of what is done. Then you are aware of this also, that perhaps the most useful lesson a man can learn is the estimation of probabilities and sifting of evidence. But this is wholly excluded from mathematics, which deal purely with necessary truth. Therefore, it has often been observed, and by no one more forcibly than your own Sir William Hamilton, that a mind formed upon this kind of study is apt to oscillate between the extreme of credulity and scepticism, and is little trained to take those sensible and practical views of the probabilities and the possibilities affecting our daily life, upon which, far more than upon abstract reasoning, the happiness of mankind depends. I may here mention in illustration what was said by a great judge of men and ability—Napoleon Buonaparte. He took for one of his ministers La Place—one of the greatest, perhaps the greatest of mathematicians, and he said of him—"He was a geometer of the first rank; but whose only idea of transacting the business of his department was with reference to the differential and integral calculus."

Now, I pass on to the other study that is the principal occupation of our youth, and that is the study of the Latin and Greek languages, and the history, science, geography, and mythology connected with them—the principal study being language, and the rest only accessories to it. Now, it strikes one, in the first instance, it is rather a narrow view of education that it should be devoted mainly—I had almost said exclusively—to the acquisition of any language whatever. Language is the vehicle of thought, and when thought and knowledge are present, it is desirable as the means of conveying it. It is not a thing to be substituted for it—it is not its equivalent. It pre-supposes knowledge of things, and is only useful where that knowledge is attained for the purpose, namely, of communicating it. I will venture to read a few lines from Pope in illustration of what I say; I should only weaken the thought if I attempted to state the effect of them. They are 140 or 150 years old, and that only shows you how abuses and mistakes may be pointed out in the most vigorous language, and with the most conclusive reasoning, and yet they may remain utterly uncared for:—

Since man from beasts by words is known,
Words are man's province; words we teach alone,
When reason doubtful, him the Sarcas letter,
Points him two ways, the narrower is the better.
Placed at the door of learning youth to guide,
We never suffer it to stand too wide,

To ask, to guess, to know, as they commence,
 As fancy opens the quick springs of sense,
 We ply the memory, we load the brain,
 Blind rebel wit, and double chain on chain,
 Confine the thought, to exercise the breath,
 And keep them in the pale of words till death.

I think it is a poor and imperfect conception of education that should limit it to the learning of any languages whatever; but surely if we are to make language the whole or a part of education, it should be the language which we are most concerned with; and I must be permitted to say that in my science of ponderation I think English has a prior claim over Latin and Greek. I do not disparage Latin or Greek; but I am speaking of what is most important to be taken first; and I think it is melancholy to consider the ignorance of our own language in which the best educated of our young men are brought up. Latin is, of course, of great use. It is the only means of opening up a great store of information which is locked up in it, and which is not to be found elsewhere. It has a noble literature of its own, and it is the key to most of the modern languages, and therefore it is a study of very great importance. But we must remember that those persons who spoke a language which was the most marked by felicity of expression, and which is the model of all literature—the inhabitants of Greece, I mean—knew no language but their own. The Romans knew just enough Greek to make them neglect their Latin, and the consequence is their literature is inferior to that of the race that came before them who knew one language. And only see how you set about learning these languages. Learning the language is a joke compared with learning the grammar. The grammar is one thing, and the language another. I agree with the German wit, Heine, who said—"How fortunate the Romans were that they had not to learn the Latin grammar, because if they had done so they never would have had time to conquer the world." Montaigne, 300 years ago, saw this, and pointed it out most forcibly, and by learning the language colloquially, "without a lash, without a tear," he became able to speak it by being talked to in Latin. But that would not answer the purpose. Because it is said "you must discipline the mind," therefore a boy is put through torture of elaborate grammars, which he is forced to learn by heart, and every syllable of which he forgets before he is twenty years of age. There seems something like a worship of inutility in this matter; it seems to be considered very fine to learn something that can not by possibility do any body any thing of good—

The languages, especially the dead,
 The sciences, especially the abstruse—
 The arts, at least all such as could be said
 To be the most remote from common use.

It is an idea that a thing can not be good discipline for the mind unless it be something that is utterly useless in future life. Now, I do not think so. There is no doubt that Greek is a language of wonderful felicity of expression; but what is more beautiful, more refined, or will exercise taste better than to study the best modern French prose to be found in M. Prevost Paradol, Sainte Beuve, and other French writers? There is nothing that can approach it in the English language. If a man wishes to exercise himself in these things he can not possibly have a better subject than French prose. The discipline of the mind is quite as good, and it has this advantage, that when he goes to Paris he will be

able to go to a hotel and make known his wants without becoming a laughing-stock to everybody; but this would be too useful, and therefore this must be put aside for some discipline in the Greek language, which he is sure to forget before he is thirty. It depends upon what you mean to make men. If you want to make them a race of sophists, poetasters, and schoolmasters, we are going about it in the right way; but for the business of life we have a little too much Latin and Greek, and if we are to have them taught, they ought to be taught on a very different system. There is nothing more absurd than to attempt to untie knots that have never been tied. If language had been made on a set of general principles—if it had been laid down by the wise men of all nations that the nominative should always agree with the verb, and a verb should always govern the accusative—and language had been made like Euclid—every one of these rules which had been tied we could untie, and a language having been put together in that way we could analyze it into rules. But, gentlemen, language was not so made. Language grew we know not how—like a tree or a plant; it was not made under general rules, and therefore, when you are trying to form general rules for it, you are sowing the sand—you will never attain to what you want; and the result is that when you come to reflect, you will find that you have wasted much time, and the best years of your life have been made miserable by studying rules, whose exceptions are often as numerous as their illustrations, and of which you never know whether they apply or not.

Latin Versification.

There is another thing I enter my protest against, and that is Latin verses. I do not think the history of poets is so prosperous that the end and object of mankind should be to make as many young people as possible poetasters. One of the least profitable of the little talents that a man can have is that of scribbling verses, and yet years of our lives are taken up in the attempt to teach us to write Latin verses, which, after all, are a mere cento of expressions stolen from different authors, the meaning of which we may not ourselves know. I know that I have been highly commended for verses I could not construe myself. This of course gives a most unfair predominance to boys who have been early taught how to use a gradus. The knack is so absurd and repulsive that no one ever acquired it late in life. It must be taught early if at all. I have known men of high classical attainments who have not got honors because they have not had the knack of stringing words together, called doing Latin verses. There is a movement going on against the system, and I hope we shall get rid of it. Another absurd thing is this—I think that a man knows a language when he can read with fluency and ease a good, plain, straightforward author, who writes grammatically and sensibly. This may very soon be done in Latin and Greek; but that is not half enough. There is no torture in that—that is very simple. But what you must do is to take a place that is hopelessly corrupt, where the amanuensis has gone to sleep, or has been tipsy, or has dropped a line, or something or other; you must read two or three pages of notes by everybody who has read at these places, written in bad Latin, stating their idea of how they ought to be reformed and translated. If *Æschylus* came to life again he would be easily plucked in one of his own choruses; and as for *Homer*, I am quite certain he did not know the difference between the nominative and accusative case; and yet the best hours of our lives are spent

in this profitless analysis of works produced by men utterly unconscious of the rules we are endeavoring to draw from them.

Ancient History.

Ancient history is a very important matter, and a very beautiful study; but it is not so important as modern history, and it does not bear nearly so much upon our transactions. Consider what it is. Ancient history has but two phases—the one is a monarchy, the other is a municipality. The notion of a large community existing by virtue of the principle of representation—of a popular government extended beyond the limits of a single town—is a thing that never entered into the minds of the ancients, so that the best years of our lives are spent in studying history in which that which makes the difference between modern history and ancient—the leading characteristic of our society—that principle of representation which has made it possible in some degree to reconcile the existence of a large country with the existence of a certain amount of freedom—was utterly unknown. The Roman Empire was established, from the necessity of the case, because when Rome became too large to be a municipality, the ancients knew of no other means than to place a Caesar—a tyrant—over the whole of it, and the idea of sending, as we should do, representatives of the different provinces to meet in Rome, and consult upon the general welfare of the Empire, never occurred to them. That was not known at that time. That was a discovery of many hundred years later. And yet to study all this history, which wants the one thing that is the leading characteristic of modern history, the best time of our life is devoted. I do not say that the time is thrown away, but it is melancholy to reflect that this history is taught, not as an adjunct but as a substitute for modern history. If a man has a knowledge of modern and mediæval history, it is important that he should have this knowledge of ancient history with which he has to compare it; but if he has no modern history he has not the means of comparison. It is useless then by itself. That state of things has utterly passed away. It perished, never to return, with the fall of the Roman Empire, and on its ruins sprung up a new state of things—the feudal system and the polity of the Middle Ages, which ripened into the present state of things. Of all that our youth are taught nothing—they know nothing of it. The subject is never brought before them, and their study is limited and confined to the wars and intrigues of petty republics, the whole mass of which would hardly, perhaps, amount to as many people as are in this great city. There is a well-known passage in a letter by Servius Sulpicius, one of Cicero's friends, in which he endeavors to console him for the death of his daughter Tullia. This is a translation of it:—"Behind me lay Ægina, before me Megara, on my right Piræus, on my left Corinth; these cities, once so flourishing, now lie prostrate and demolished before my eyes. I thought, 'Are we little mortals afflicted when one of us perishes, whose life must at any rate be brief, when in one place lie the corpses of so many towns?'" Well, that is one way of looking at the question. I have been in the same place, and also had my thoughts, and I thought how many irretrievable years of my life have I spent in reading and learning the wars, and the intrigues, and the revolutions of these little towns, the whole of which may be taken in at a single glance from the Acropolis of Athens, and would not make a decently-sized English county. I think that reflection must force itself on the mind of any one who has gone to Greece, and has seen the wonderfully

small scale on which these republics are laid out, to which the earlier years of his life were almost exclusively devoted.

Idea of Progress Wanting.

There is another great fault in this exclusive direction of the mind of youth to antiquity, and that is, that their conception of knowledge wants entirely that which is our leading conception in the present day. I do not think that you will find any where in the study of antiquity that which is now in everybody's mouth—the idea of progress. The notion of the ancients was that knowledge was a sort of permanent fixed quantity—that it could not be increased—that it was to be sought for; and if a man wanted to seek for knowledge he did not sit down and interrogate Nature, and study her phenomena, and also analyze and inquire, but he put on his seven-leagued boots and traveled to Egypt or Persia, or as far as he possibly could, in the expectation of finding some wise man there who could tell him all about it. That was the case with Plato, and almost all the great men of antiquity. Now it is no small fault of the modern system of education that it withholds that conception, the key of modern society—that is, not to look at things as stationary, but to look at the human race as, like a glacier, always advancing, always going on from good to better, from better to worse, as the case may be—an endless change and development that never ceases, although we may not be able to mark it every day. That conception is entirely wanting in the antique world; and therefore it is not too much to ask that that idea should be imparted to youth before we give so much time to study the state of society in which it is wholly wanting. I won't detain you with any discussion in this place on the morals and metaphysics of the ancients. I suspect that they knew as much of the mental sciences as we do now—neither much more nor much less; and, without speaking disrespectfully of them, we may say this, that no two of them had the same opinion on the same subject. Then we are dosed with the antiquities of the ancients. Every man is expected to know how many Archons there were at Athens, though he does not know how many Lords of the Treasury there are in London; he must know all the forms of their courts, though he knows hardly the names of our own. He must be dosed with their laws and institutions—things excessively repulsive to the young mind—things only valuable for comparing with our own institutions, of which he is kept profoundly ignorant.

Ancient Geography.

A large portion of time is spent in studying divisions of countries that have long ceased to exist, or have any practical bearing on the world. Of course, if you are to study the language of the ancients, these things must be learned; but is it not melancholy to think how much modern geography is sacrificed to this knowledge? There is nothing in which young men are more deficient than in geography. I shall just mention a few things within my own knowledge. Take, for instance, Australia. It is very rare to find a person who knows where the colonies of Australia are. The island of Java is said to have been given up by Lord Castlereagh at the Treaty of Vienna to the Dutch because he could not find it in the map, and was ashamed to confess his ignorance. I remember a very eminent member of the House of Commons indeed—I will not mention his name—who made a speech in which it was quite

manifest to me that he thought that Upper Canada was nearest the mouth of the St. Lawrence, and Lower Canada was higher up the river. If I were to elicit his name you would be astonished. Well, we are going to make an expedition to Abyssinia. The whole thing depends upon the nature of the country. Now, what do we know about it? There is a great deal to be known about it. A great many men have traveled there, and a great deal has been written about it. It is as much as most men can do to find it on the map, and very few know a single town in it. I have amused myself trying to see how few men know where Gondar, the capital of this country, is situated on the map; and as the prisoners we are going to attempt to rescue can probably only be reached by going there, and so to Magdala, it is nearly as important to know where it is as to know that Halicarnassus was the capital city of Caria, or that there were twenty-three cities of the Volscians in the Campagna of Rome. There is another illustration I may give. The name of the place is in the Bible, and we might have hoped better things. You will remember that Mr. Bright in last session of Parliament denominated certain gentlemen by a name derived from a cave. Well, I assure you, gentlemen, there was not one person in twenty whom I met who knew any thing about the Cave of Adullam, and I was under the melancholy and cruel necessity of explaining it to them, and of pointing the arrow that was aimed against my own breast. After all, gentlemen, education is a preparation for actual life, and I ask you—though no doubt the memory is exercised and the faculties are sharpened by these studies in some degree—whether they really in any degree fulfill that condition. I say there is nothing so valuable for a man as to avoid credulity. If he discounts a man's bill, he should inquire before he does it. But what we are taught by this kind of study, our attention being so much placed upon words, is to take every thing for granted. We find a statement in Thucydides, or Cornelius Nepos, who wrote 500 years afterwards, and we never are instructed that the statement of the latter is not quite as good as the former. And so with other things. The study of the dead languages precludes the inquiring habit of mind which measures probability, which is one of the most important that a man can acquire.

Deficiencies in the Education of a Public School or University Man.

I will now give you a catalogue of things which a highly-educated man—one who may have received the best education at the highest public schools, or at Oxford—may be in total ignorance of. He probably will know nothing of the anatomy of his own body. He will not have the slightest idea of the difference between the arteries and the veins, and he may not know whether the spleen is placed on the right or the left side of his spine. He may have no knowledge of the simplest truths of physics, and would not be able to explain the barometer or thermometer. He knows nothing of the simplest laws of animal or vegetable life. He need not know, he very often does not know, any thing about arithmetic, and that ignorance sticks to him through life; he knows nothing of accounts, he does not know the meaning of double entry, or even a common debtor and creditor account. He may write an execrable hand; good clear writing—perhaps the most important qualification a gentleman or man of business can possess—is totally neglected. He may be perfectly deficient in spelling. I knew an eminent person who got a first-class honor, and in his essay—a most excellent English essay—there were forty-six

mis-spellings. He may know nothing of the modern geography of his own country; he may know nothing of the history of England. I knew an instance not long ago of a gentleman who had attained high honors at the University, and who became a contributor to a periodical, in which it was suggested he should illustrate some fact by reference to Lord Melbourne's Ministry. He said he had never heard of Lord Melbourne. He need know nothing whatever of modern history—how the present polity of Europe came into effect. He need know nothing of mediæval history, and that is a matter of serious importance, because important results have flowed from ignorance of that history. Great schisms have arisen in the Church of England from absurdly-exaggerated ideas of the perfection of every thing in that dreadful period; and the state of gross ignorance in which people are left as to these times seems almost to lead them to suppose that the best thing that modern society could aim at would be to return to the state of things which existed when the first crusade was projected. He may be in a state of utter ignorance of the antiquities or the law of England; he knows the laws and antiquities of Greece and Rome. The English laws and antiquities are bound up with our freedom and history, and are important to every day's business; but he knows about them nothing whatever. We have, I here say boldly, a literature unparalleled in the world. Which of our great classical authors is a young man required to read in order to attain the highest honors our educational institutions can give him? He studies in the most minute manner the ancient writings of Rome or Greece. But as for Chaucer and Spenser, or the earlier classics, the old dramatists, or the writers of the reigns of Queen Elizabeth and Charles I, he knows nothing of them; and the consequence is that our style is impoverished, and the noble old language of our forefathers drops out of use, while the minds of our young men are employed instead in stringing together scraps of Latin poets learned by heart, and making them into execrable hexameters. Then as for modern languages:—There is some feeble sort of attempt to teach them, but nothing effective; and yet surely, if English is to have a preference over modern languages, as it ought to have, modern languages ought to have a preference, as far as the practical affairs of life are concerned, over ancient languages. I have been with a party of half-a-dozen first-class Oxford gentlemen on the Continent, and not one spoke a word of French or German; and if the waiter had not been better educated than we, and known some other language than his own, we might all have starved. That is not nearly all, but that is enough. I think you will agree with me that, as Dr. Johnson said of the provisions of the Highland inn, the negative catalogue is very copious, and I therefore sum up what I have to say on this point by making this remark, that our education does not communicate to us knowledge, that it does not communicate to us the means of obtaining knowledge, and that it does not communicate to us the means of communicating knowledge.

These three capital deficiencies are undoubted; and what makes these so painful is the thought of the enormous quantities of things eminently worth knowing in this world. I have spoken only of modern history, of modern languages; but what are modern history and languages compared with the boundless field that nature opens out—with the new world which chemistry is expanding before us—with the old world that geology has called again into existence—with the wonderful generalization with regard to plants and ani-

mals, and all those noble studies and speculations which are the glory and distinction and life-blood of the time in which we live, and of which our youth remain, almost without exception, totally ignorant? It is not too much to say, that the man who becomes really well educated must begin his education after it has closed. After all had been done for him that the present miserable, contracted, and poor system can do, he has to begin and educate himself over again, with a feeling that he has wasted the best and most precious years of his life on things neither useless nor unprofitable in themselves, but which were the mere by-paths or appanages to the knowledge which constitutes the mental stock of a man of erudition.

Influence of Educational Endowments.

How are we to account for this phenomenon—how, with physical science in the state that it is, with such a history as ours, with such a literature as ours, with such a literature as that of modern Europe before us, we should turn aside from this rich banquet, and content ourselves with gnawing at mouldy crusts of speculations which have passed away upwards of two thousand years? How are we to account for this? It is easily accounted for. It is mainly the fault of educational endowments. When the educational endowments of Universities were made, there really existed no English literature. Modern history had not begun; mediæval history was only to be found in meagre annals of monkish chroniclers. Physical science was not in existence at all; and there really was nothing to direct the mind except Latin and Greek, and Aristotelian logic. No blame, therefore, attaches to those noble and philanthropic persons who made these foundations. The blame is in those who, after the immense expansion of knowledge, have not found means to expand the objects to which these endowments may apply in a similar proportion. Nor does any blame attach to our Universities, considered strictly as such—meaning by a University a body that ought to examine and test the advancement of its pupils; because our Universities do give examinations, and are willing, I am sure, to give them on any subject on which pupils can be found. But the blame lies with the Government of this country, because these endowments which are now exclusively given to Latin, Greek, and mathematics, are really, in my opinion, public property, for the use of which the State, as representing the public, is responsible. So long as they answer the end that endowments should answer, they should be let alone. When they do not, it is our business to reform them. Now what end do they answer? The end that they answer is this—they give an enormous bounty, an enormous premium, on the study of the dead languages, and of pure mathematics. Well, the studies of the dead languages, and of pure mathematics, are noble and valuable studies, and if that was all I would not object. But you know very well you can not give a premium to one study without discouraging another, and though their first effect is to give a premium to these studies, their collateral and far more important effect is to discourage, and, I would say, prevent, all those other studies which appear to me infinitely more worthy of a place in education. If a young man has talent, and is in want of money, as any young man is apt to be, and wants to turn his talent to advantage, suppose he devotes himself to physical science in Oxford, he can gain a first-class, whatever good that will do him. But there is hardly an endowment open to him; whereas, if he gave the same trouble to Latin and

Greek, he might be a Fellow of half a dozen different colleges with the most perfect ease. How can you expect these studies to get fair play, when they are so handicapped, when the whole weight of these endowments, amounting to about half a million annually, is thrown into the scale of the dead languages, and the study of pure mathematics? The fault lies, therefore, with the Government, which has not reformed these endowments; and the remedy, as it appears to me, is that these endowments should be emancipated from this narrow application, so that the emoluments that are to be obtained for learning, may be impartially distributed among all the branches of human knowledge—not proscribing the subjects to which I have alluded, but not giving them these invidious preferences over all the rest.

The same thing applies to our public schools. They are really adventure schools, kept by masters for their own profit. There is a foundation which forms the nucleus, and that foundation is generally for the purpose of teaching Latin and Greek, and that overrules and dominates the schools. The remedy is in the hands of parents; but these schools have got a good-will such as no other institution in the country has got. A man that has been at a school, however badly taught he has been, however much he has been flogged, always goes away with an affection for it. He forgets his troubles. It is a time that appears to us all very pleasant in the retrospect; and as these troubles are to be undergone not again by himself, but by his son, he always sends him there. No doubt, if we could only secure a fair stage and no favor for all the different branches of instruction, the thing would remedy itself. Do not misunderstand me. I do not think it is any part of the duty of Government to prescribe what people should learn, except in the case of the poor, where time is so limited that we must fix upon a few elementary subjects to get any thing done at all. I think it is the duty of the parents to fix what their children should learn. But then the State should stand impartial, and not by endowments necessarily force education into these channels, and leave those others dry. And, therefore, what I would press is, that somehow or other the endowments should be so recast as to give all subjects—physical science, modern history, English history, English law, ancient languages, ancient literature, ancient history, ancient philosophy, all a fair and equal start.

You will say, How is it possible for this to be done? I don't presume to say what is the best way of doing it, but I can tell you one way it can be done, because I have done it myself. I was Secretary to the India Board at the time when the writerships were thrown open to public competition. We had of course the problem to solve then, because if we had restricted them to Latin and Greek, of course we should have excluded a great number of very meritorious candidates—gentlemen, for instance, coming from the Scotch Universities, who, though very well versed in the philosophy of mind, and many other valuable studies, would not have been able to compete perhaps successfully in classics with boys trained in the English public schools. And therefore we had to attempt to do something of the kind that I have endeavored to point out to you as being necessary to do. In order to solve the problem of education, I, with the assistance of Lord Macaulay and other eminent men, prepared a scale which has since, with very little change, been the scale upon which these offices have been distributed; that is, we took every thing that we could think of that a well-educated man could learn. We took all the languages: we took

Latin and Greek, we took French and English, and all the modern languages of Europe; we took the principal branches of physical science, we took history, English literature, philosophy of mind as taught in Scotland, and at Oxford, and at other places; we took every thing, and we gave marks to each according to their relative importance, as near as we could arrive to it; and under that system all persons have been admitted equally and fairly to the benefits of those offices, whatever their line of study may have been. Instead of loading the dice in favor of the dead languages, we gave them all a fair start, and the thing, so far as I know, has worked perfectly smoothly and with perfect success. Now, I say something of that kind should be done if we are to reform endowments so as to place all studies on a level, and then let the best study win. I won't pretend to influence the decision of parents, but I should give to them no bribe, no inducement, to choose one study more than another, but allow them to take whatever they like best. And I think you would find that the public appetite for Latin verses, the difficult parts of Greek choruses, and the abstruser rules of grammar, such as are given in the Latin Primer recently issued for the use of public schools, would begin to abate; and the people would think it is better to know something of the world around them, something about the history of their own country, something about their own bodies and their own souls, than it is to devote themselves entirely to the study of the literature of the republics of Greece and Rome.

The time has gone past evidently when the higher classes can hope by any indirect influence, either of property or coercion of any kind, to direct the course of public affairs. Power has passed out of their hands, and what they do must be done by the influence of superior education and superior cultivation; by the influence of mind over mind—"the sign and signet of the Almighty to command," which never fails being recognized wherever it is truly tested. Well, then, gentlemen, how is this likely to be done? Is it by confining the attention of the sons of the wealthier classes of the country to the history of these old languages and those Pagan republics, of which working men never heard, with which they are never brought in contact in any of their affairs, and of which, from the necessity of the case, they know nothing? Is it not better that gentlemen should know the things which the working men know, only know them infinitely better in their principles and in their details, so that they may be able, in their intercourse and their commerce with them, to assert the superiority over them which greater intelligence and leisure is sure to give, and to conquer back by means of a wider and more enlightened cultivation some of the influence which they have lost by political change? I confess, for myself, that whenever I talk with an intelligent workman, so far from being able to assert any such superiority, I am always tormented with the conception, "What a fool a man must think me when he finds me, upon whose education thousands of pounds have been spent, utterly ignorant of the matters which experience teaches him, and which he naturally thinks every educated man ought to know." I think this ought easily to be managed. The lower classes ought to be educated to discharge the duties cast upon them. They should also be educated that they may appreciate and defer to a higher cultivation when they meet it; and the higher classes ought to be educated in a very different manner, in order that they may exhibit to the lower classes that higher education to which, if it were shown to them, they would bow down and defer.

WILLIAM EWART GLADSTONE

WILLIAM EWART GLADSTONE was born in Liverpool Dec. 29, 1809, educated at Eton, and Christ Church, Oxford, where he graduated in 1829, taking a double class in 1831. After traveling on the continent, he was returned to Parliament in 1832, and was in 1834 made a junior Lord of the Treasury, and in 1835 under Secretary for Colonial Affairs, by Sir Robert Peel. In the same year he retired from office with his leader, and returned with him in 1841 as Vice-President of the Board of Trade, and Master of the Mint. In this capacity he gave the explanation required of the commercial policy of the government and of the revived tariff in 1842. In 1843 he was made President of the Board of Trade, and in 1846, succeeded Lord Stanley as Secretary of State for the Colonies. In the following year he resigned, and in a few months he was elected member of the House for the University of Oxford, and in 1852 became Chancellor of the Exchequer. In 1855 he was in Parliament but out of office, until 1859, when he resumed office as Chancellor of the Exchequer, assisted in negotiating the commercial treaty with France, and aided the Oxford University Commissioners. He was rejected as member from Oxford in 1865, but was immediately returned for South Lancashire, and after the death of Lord Palmerston became leader in the House of Commons and Chancellor of the Exchequer under Lord Russell's administration. In 1866 he brought in a Reform Bill, and again in 1868, when he was successful. As Premier after 1868 he signalized his ministry by disestablishing the Irish Church, and inaugurating a new system of land tenure in Ireland.

Mr. Gladstone has kept up his classical studies, for which he was eminent at Eton and Oxford, and published an elaborate work on Homer. He maintains the classical side of the question of a modern curriculum for secondary and superior schools.

Classical Training, the Basis of a Liberal Education.

The relation of pure science, natural science, modern languages, modern history, and the rest, to the old classical training, ought to be founded on a principle, and that these competing branches of instruction ought not to be treated simply as importunate creditors that take one shilling in the pound to-day because they hope to get another shilling to-morrow, and in the meantime have a recognition of their title. This recognition of title is just what I would refuse; I deny their right to a parallel or equal position; their true position is ancillary; and as ancillary it ought to be limited and restrained without scruple as much as a regard to the paramount matter of education may dictate. But why, after all, is the classical training paramount? Is it because we find it established?



because it improves memory, or taste, or gives precision, or develops the faculty of speech? All these are but partial and fragmentary statements, so many narrow glimpses of a great and comprehensive truth. That truth I take to be, that the modern European civilization from the middle age downwards is the compound of two great factors, the Christian religion for the spirit of man, and the Greek (and in a secondary degree the Roman) discipline for his mind and intellect. St. Paul is the Apostle of the Gentiles, and is in his own person a symbol of this great wedding. The place, for example, of Aristotle and Plato in Christian education is not arbitrary, nor in principle mutable. The materials of what we call classical training were prepared, and we have a right to say were advisedly and providentially prepared, in order that it might become, not a mere adjunct, but (in mathematical phrase) the complement of Christianity in its application to the culture of the human being, as a being formed both for this world and the world to come.

If this principle be true, it is broad, and high, and clear enough; and it supplies a key to all questions connected with the relation between the classical training of our youth, and all other branches of their secular education. It must of course be kept within its proper place, and duly limited as to things and persons. It can only apply in full to that small proportion of the youth of any country who are to become in the fullest sense educated. It involves no extravagant or inconvenient assumptions concerning those who are to be educated for trades and professions, in which the necessities of specific training must more or less limit general culture. It leaves open every question turning upon individual aptitudes and inaptitudes; and by no means requires that boys without a capacity for imbibing any of the spirit of classical culture are still to be mechanically plied with the instruments of it after their unfitness in the particular subject matter has become manifest. But it lays down the rule of education for those who have no internal and no external disqualification; and that rule becoming a fixed and central point in the system, becomes also the point around which all others may be grouped.

IMPROVEMENT OF AMERICAN COLLEGES.

COLUMBIA COLLEGE, NEW YORK CITY.

One of the most significant phases in the condition of American colleges is the publicity now given to the action of their Trustees, and to the internal economy of the institutions generally. Officers and instructors no longer regard themselves as members of close corporations, but hold their meetings in public for the discussion of all questions affecting the finances, and courses of instruction. Whether this is in all respects desirable, we shall not attempt here to discuss, but this publicity has brought all subjects connected with college improvement into the educational discussions of the day more prominently than at any former period. To these discussions Dr. Barnard, President of Columbia College, has, at different times, made important contributions. As Professor in the State University of Alabama, and as President of the State University of Mississippi, his views on college discipline and studies, expressed in communications to the corporate authorities, did much to arouse the attention of all interested to important modifications of our college system. As President of Columbia College, he has discussed the most important questions of educational reform, in his annual Reports to the Trustees, so far as they concerned that institution, in a masterly manner. His successive reports to the Trustees are permanent contributions of great value to the literature of college education. In his report for 1870-71, he has expressed his views on the subject of optional studies, or a fixed curriculum, with the judgment of a practical educator. We wish he had closed his discussion of the subject with the outline at least of a system of education, at once liberal and practical for the sons of New York merchants, destined to carry on the work of their fathers and the great enterprises of the city.

As illustrating the causes which have determined the attendance in colleges located in cities, Dr. Barnard has presented in this and his former Report the most reliable statistics yet given as to the number and age of college students; and for the first time has brought something like order into the classification of these institutions, which has become more and more confused, with each attempt to give the number and location of institutions called colleges and universities.

ELECTIVE STUDIES.

In the last annual communication of the president to the trustees, evidence was presented, derived from a pretty extensive examination of the statistics of collegiate education in the United States, showing that the colleges, in insisting upon the pursuance of an invariable curriculum of study by all their students, are not satisfying the demands of the age as it respects the higher education. The question was then discussed as a question of pure statistics; with a view to ascertain, if possible, what is the estimation in which the education furnished by the colleges is held by the people at the present time, compared with what it was earlier in the century. The result of the inquiry, however it might turn out, did not necessarily involve any thing beyond. Should it appear that the colleges at present attract a smaller number of students in proportion to the population than formerly, and even that this proportion is sensibly diminishing as years go by, it is still free to those who believe that the system can not be materially improved, to ascribe this to popular error; and to hope, and to profess to anticipate that this error, like many caprices of which precedents may be found perhaps in history, will presently pass away. To such the results actually reached in the inquiry will probably be unwelcome, but will fail to suggest the propriety of any modification of the system itself.

There are those who hold with some reason that the popular judgment of systems of education is not to be trusted; but none can wisely claim that it ought not to be regarded. No scheme however judicious can be successful, in a country where choice is free, unless the people can be made to see that it is judicious. To a community without education, or but imperfectly educated, the value of education of any kind is not very obvious. And hence it is that this is one of the subjects of great public interest, of which it is unsafe to trust the regulation to the ordinary law of supply and demand. Limitation of knowledge is not, like deficiency of food, attended with a craving for a larger supply. It is characteristic of ignorance, on the other hand, to be content not to know; and of partial information, to be puffed up with the conceit that there is little more to be known. The relations of men to each other in civilized society render certain descriptions of elementary knowledge necessary to all; or at least cause the absence of such humble knowledge to be felt as a positive inconvenience; and so far as this may extend, but only so far, we may presume that education will

be provided in obedience to a spontaneous popular demand. But a high order of education is not the necessity of the many, and the want of it can never be felt by them as a personal want. Still less are the multitude likely to feel the importance to the commonwealth that there should be an order of educated men superior to themselves. On the other hand, the popular feeling is instinctively opposed to the growth of such an order, or to any order which breaks the dead level of uniform mediocrity. This is well illustrated in the history of educational institutions in a number of the more recently formed states of our Union, in which provision for the higher education has been made by means of endowments granted by the general government, but intrusted for their administration to the legislatures of the States themselves. In cases which have fallen under the personal observation of the president, the colleges, though costing the people nothing, have been subjects of constant denunciation by demagogues as nurseries of aristocrats, their halls have been but meagrely attended in spite of attractions which ought to have filled them with throngs, and their endeavors to fulfill their mission have been rather tolerated than sustained by the people.

The fact then regarding the higher education is, not that the demand creates the supply, but that the supply determines the demand. Superior educational institutions are provided either by governments or by the thinking few; and these, by the offers which they hold out, and by the visible results which they produce as illustrated in the subsequent history of those who avail themselves of their advantages, slowly educate the people to an understanding of the value of education—of the value of education in general, and of the value of the form of education furnished, in particular. So long as this form of education seems to fit men best to meet with and master the practical problems presented by the age in which they live, whether these be political or social, industrial, moral or purely intellectual, so long will it be preferred, and so long will the public preference for it be manifested in the increasing numbers of those who seek its benefits. If, in the changing conditions of society, systems of education remain wholly unchanged, there is reason to doubt whether the training which was once perfectly adapted to the circumstances can continue to remain so. And its want of adaptedness to the new exigencies of life, or its positive defects, can not fail to be detected by the people, through the application of the same criteria by means of which they learned to value the higher education at all. As therefore the practical

success of educational systems and of educational institutions, in a country where as before remarked, the choice is free—where government, that is to say, does not step in to control the will of the individual—must depend upon the favor voluntarily extended to them by the people, the evidence of a great and decided change in the popular estimation of a system long established and long undeniably favorite, compels the inevitable conclusion that this system requires modification. No theory can stand against a fact like this. It is idle to prove to a people that they ought to prefer a species of culture which, upon evidence satisfactory to them, they have deliberately made up their minds not to prefer.

The change in respect to the popular appreciation of the system of collegiate education, in form as hitherto conducted in our country, indicated by the diminished attendance upon the colleges, is too great to be treated as an accidental irregularity; and it has been steadily progressive for so long a time, that it can be attributed to no passing caprice. Taking the whole country through, the number of undergraduate students in all the colleges is less at the present time in proportion to the entire population, than it was thirty years ago, nearly in the ratio of two to one. From New England, where collegiate education has always been more highly in favor than any where else, the number of undergraduate students sent to the colleges within and without New England, is not greater by one hundred in all at this time, than it was in 1838. It is even considerable less, if, at both dates, we leave out Harvard University; an institution which has received, within the last few years, a rapid and surprising increase of numbers, as an apparent consequence of having abandoned the distinctive feature of the collegiate system of instruction, *i. e.* the invariable curriculum of study. In all New England there is not a single considerable college in which the attendance from its own state has not fallen off in recent years, except Amherst, where it has not increased, though the population has increased largely, and Harvard, in regard to the exceptional prosperity of which, the probable reason has just been suggested.

In regard to our own State of New York, we have not the means of ascertaining, for former years, how many young men have been sent to colleges beyond the State limits, or how many from other States have attended our own; but the comparison of the *total* attendance upon the colleges of New York at different periods exhibits results entirely in harmony with those derived from New England. Taking up, for instance, entirely at random, the American Almanac for 1848, we find that the colleges of the State of

New York, then six in number, viz. Columbia, Union, Hamilton, Madison, Geneva (now Hobart) and the N. Y. City University, embraced for the year preceding, nine hundred and forty undergraduate students; while in 1869-70, the total attendance of students in Arts in all the colleges, now increased to *twelve* in number, viz., besides the above-named, Genesee, Rochester, St. Stephens, Cornell, Alfred, and the college of the City of New York, was only one thousand and thirty-four; an absolute increase of ninety-four, or ten per cent. only, while the population of the State during the same time increased not less than fifty per cent.

If, in connection with facts like these, which illustrate the declining favor with which that system of collegiate education is regarded, which makes adherence to an invariable curriculum of study its distinctive characteristic, we consider the success of those institutions which offer to their students a considerable latitude of choice in the selection of their studies, we shall see that it is not an inferior grade of education which the popular voice demands, nor a diminished amount of exaction. It is rather that education shall be varied to suit the varying capacities of individuals; and further, that, in place of limited and necessarily superficial attainment in many things, there shall be thoroughness, or at least the opportunity for thoroughness, in a smaller number. The throng which has filled the halls of Cornell University from the first day of their opening has been gathered mainly by the opportunity thus offered. And though the education furnished by some of the schools of that institution is not what can be properly called liberal, yet setting these schools aside, the truth still remains that Cornell University, in the third year of its existence, outnumbers any three of those of the colleges of the State which have been in existence half a century. The University of Michigan furnishes an example almost equally striking which has been in evidence for a much longer period. This institution numbers at present nearly five hundred students in its undergraduate department. But the most remarkable illustration of the same truth is probably that which is to be found in the case of Harvard University already mentioned; especially when considered in comparison with the sister institution next in age (in New England) and her most prominent competitor, Yale College. These two institutions have, for many years, appeared to divide pretty equally the popular favor. But while the first is exhibiting at the present time a growth more vigorous than has marked any former period of her history, the second is nearly stationary. The average undergraduate attendance of Yale

College for the last five years (including the present) has been five hundred and thirteen. Her catalogue for 1870-71, gives the present attendance at five hundred and twenty-two; but the total for 1860-61—ten years ago—was almost exactly the same, viz. five hundred and twenty-one. The increase at Harvard in the meantime has been nearly two hundred.

The reasons which were once thought conclusive in favor of an invariable curriculum of study extending through the collegiate course, have many of them at present lost their principal force. The first and chief of these was that the object of collegiate training is so almost exclusively mental discipline, and so little the imparting of useful knowledge, as to make a uniform system of instruction a logical necessity. It is not what a young man *likes* to study—that is the argument—but what he *needs* to study, to which his attention should be directed. Very probably what he likes least he will need most, and to give to him freedom of choice will be to defeat the ends of his education.

The force of this argument depends upon the assumption, which is always made, and which thus far has never been in terms distinctly contradicted, that the entire college course is or ought to be a course of mental discipline strictly, and nothing else. However justifiable this assumption may have been fifty years ago, it can by no means be admitted at the present time, without at least important qualification. The mental powers can not, it is true, be exercised without improvement upon any subject, or at any period of life before the commencement of natural decline; and in this sense we may say that we are always under mental discipline. But the discipline which we properly distinguish as educational is something different from this. It may be defined or explained somewhat as follows:—

There is a period of early life during which, without any artificial and intentional culture at all, the powers of the body and those of the mind simultaneously unfold themselves. During this period if certain muscles of the body or certain of its limbs be kept in incessant activity, and certain others in continual repose, the result will be an abnormal and possibly a monstrous growth. But if the child be allowed to grow up under ordinary conditions so as to reach adult years with tolerably symmetrical proportions, the subsequent effect of unequal activity of the different members of the body will no longer be an unnatural development, or a marked disturbance of the balance of the physical powers; but rather a greater skill or aptness in the use of those which are most employ-

ed. Nor even in regard to this, is use or practice or exercise, after a very early period of life, sufficient to produce results which, while the system is still plastic, are accomplished almost imperceptibly and with infinitely less effort. There are arts, such for instance as glass blowing, which can never be mastered except by persons who have grown up to them from early childhood. And no fact is more familiar than the facility with which the pronunciation of foreign languages is acquired by infantile lips; while it is a hopeless undertaking for an adult, no matter what amount of practice and perseverance he may expend upon the effort, perfectly to master the same accomplishment.

Now precisely the same law holds true in regard to mental development. As there is a period of infancy during which the child is incapable of supporting his own weight; so there is one in which he is hardly conscious of his own existence. And as, with the physical growth, the organs of the body acquire strength and come by degrees under the control of the will, so correspondingly, in the natural and quite spontaneous growth of the mind, the faculties unfold themselves and expand into vigor, in simple obedience to the principle of development divinely implanted in the soul in the moment of its birth. With the progress of years this growth goes on; and the mind, like the body, attains an adult stage, whether it be subjected to external influences controlling its habits—that is, to educational influences—or not. There comes a time at last beyond which educational influences are proverbially vain. There is another period, the earliest of all, in which they are almost omnipotent. This is the period during which, in obedience to nature's law, the faculties are growing; and when the educator may force them to grow into any mould which he may choose to throw around them. But when expansion has ceased, moulds will be placed in vain: the mind will retain the contour which nature and circumstances have given it; and from this point onward the business of education is no longer to form it, but to make the most of what it is. There is here doubtless room for the educator to do much; but his business is to give fair play to the faculties such as they are, and such as they must continue to be; rather than to repress the salient characteristics, and waste both precious time and weary labor in the endeavor to bring out others which have lost the power to respond to the solicitations of the cultivator.

Now it can hardly be doubted that the average age of undergraduates in our American colleges is more advanced at present by several years, than it was a century ago. At the admission of

students into Columbia College, record is made of the age of each candidate at his last preceding birthday. Of the students of all the classes at present in college, the average of the ages thus recorded is sixteen years and nine months; and as this is the average at the birthday preceding admission, it may fairly be concluded that, at the time of admission, the average age exceeded seventeen years. The average age at graduation is therefore twenty-one years, or the age of manhood complete. Until within the last six or seven years, the matriculation books of the college have contained no record of the ages of the students. It is impossible, therefore, from this source, to obtain any information as to the average age of admission into this college during the last century. Quite a number of instances have, however, come to our knowledge in which individuals entered the college as early as twelve or thirteen, and graduated at sixteen or seventeen. Possibly these were extreme cases; but no such case could be possible at all at present, since the statutes prohibit the admission of any student below fifteen years of age. Suppose then the average age at that early period to have been thirteen or fourteen years. That is already three or four years below the present average; and three or four years taken at the very time of life when the mental as well as the physical organization is losing its plasticity and attaining its ultimate form as well as stature. It is a question well worth considering, whether a plan of education which might be admirably adapted to the circumstances of boys between twelve and sixteen, could possibly be equally suitable for young men between seventeen and twenty-one. For the first class named, there might be reason in demanding that the entire course should be shaped with a view to mental discipline only. As it respects the second, there is no less reason for requiring that a principal object should be, to impart knowledge for the sake of knowledge itself. And though this should not be the governing object throughout the whole course, it ought at least to give character to the later years.

A second reason why it is no longer expedient to treat collegiate instruction as being designed exclusively for mental discipline, in contradistinction to the acquisition of knowledge, is found in the fact that it is no longer practicable to do so. While the subjects taught in college were few, and with the exception of the pure mathematics, were purely literary, it was not difficult to prosecute them so steadily and so far as to make them instruments of a real mental discipline. This is no longer the case, especially after the first two years. The curriculum has been so overloaded by gradual addi-

tions, that if now an equal distribution of the available time were made to the several subjects of study, each one could command but two or three weeks. This surely is not sufficient to make of any study an efficient instrument of mental discipline. Nor is the expedient by which the several subjects, instead of being successfully disposed of, are spread out over the surface of a whole session or a whole year, being alternated in such a manner as to separate the hours devoted to each by considerable intervals, sometimes by several days, one which is likely to increase its efficiency. It has been claimed for our American college system that, in departing from the type on which it was originally constructed, as it has done by the large extension of its curriculum, it has been materially improved; and this is true, if we regard its principal aim to be to impart knowledge; but it is by no means so if we consider it as designed mainly for the discipline of immature minds. Under the arrangements actually existing and in present circumstances unavoidable, it is impossible to confine the attention of the student with steadiness to any particular subject; and without some such steadiness of effort the benefit of study can not be subjectively great. It is true that diversity of labor, under proper limitations is beneficial; and is in fact indispensable to the attainment of the important educational end of a well balanced mental development; but it is evident that such a diversification may be carried so far as to result rather in a dissipation than a healthful exercise of the mental powers. Our college system may not have reached this extreme; but it is not necessary that it should reach it in order that its usefulness for its original object may be seriously impaired.

A third reason why it is desirable that our colleges should cease to insist upon an invariable curriculum of study throughout the whole extent of the educational course is to be found in the fact that we have no other institutions but these to supply to American youth that advanced training which in Europe is furnished so abundantly by the universities. We profess to comprehend in our teaching nearly every subject of human knowledge; but we are scarcely able to pursue a single one beyond its elements. The majority of our students do not become so proficient, even in the classical tongues, as to be able to read with facility the works of classic authors which they have not read before; and yet these are subjects in which they are required to be tolerably well versed before they enter the college. The only expedient by which it can be made possible for an individual to pursue any given subject to a greater extent, and to attain to greater thoroughness in it than at present,

is to permit him, at some period of the course, to devote himself more uninterruptedly to this, and to relinquish other subjects in its favor. Supposing such a freedom to be generally allowed, the tone of the teaching in all the departments of the college will be necessarily raised, and will be, to some extent assimilated to the teaching of the European universities. Those colleges which peculiar circumstances, such as the possession of large resources, or of a wide and well established reputation, conspire to favor, may be able at length to place themselves entirely upon the level of those celebrated foreign institutions. It is probably only by some such gradual transformation of existing institutions, that we shall in this country ever be able to realize the ideal of a continental university. Projects innumerable have been set on foot looking to the independent erection among us of such grand and costly educational establishments; but so long as the highest institutions of this description which we have already, in spite of all the influences, political, denominational, sectional and personal, which can be combined in their favor, continue to be struggling against the difficulties which limited means entail upon them, it is idle to expect that such schemes can succeed, and it would be a manifest wrong if they could. What the country now needs most is that the colleges should be supported and strengthened; what the colleges need is, such improvements in their plan of operations, as shall regain for them the confidence and favor of the people of the country, and shall enable them, or some of them at least, to supply that deficiency in the system of our superior education, which, if not supplied by them, can hardly be supplied at all.

There can be no doubt that a considerable reason why the average age of students in American colleges has become so materially advanced within the last half century, is to be found in the great improvement within that time, of the Secondary Schools. Fifty years ago, almost the only superior schools below the colleges to be found in the country, were those which were devoted to the preparation of boys for entering college; and in these very little was taught beyond the ancient languages. Now, the academies of the State of New York, and the schools of corresponding grade in most of the northern, middle; and western states, give instruction in as large a range of subjects as the colleges themselves. They differ from the colleges in permitting to their pupils the largest freedom of choice in the selection of their studies, and in limiting attendance to no determined period of years. Some of them, perhaps most of them, have established what they call, "a graduating course of study,"

corresponding to the college curriculum ; at the close of which they grant certificates of proficiency, or diplomas, to those who have completed the course ; but these certificates confer no rights or privileges, and though often representing an amount of attainment equal to that of many college graduates, do not carry with them a prestige like that which accompanies a degree in Arts. Academies conducted on this plan have all the characteristics of the ordinary college, with the elective system added. Except as to this additional feature, and in being open to both sexes, they do not differ in any material respect from the average college of the country. There are unquestionably academies in the State of New York which, considered as educational instrumentalities, are immensely superior to many institutions elsewhere, which in virtue of a name and a charter are entitled by law to take rank above them. In the list of the subjects taught in these academies there is not one wanting which is to be found in the curriculum of the average college of the United States. This will be apparent from the following enumeration derived from the last annual report of the regents of the university. Omitting the elementary branches, as being of course taught, we find in this enumeration the following, viz., under *mathematics*, alphabetically arranged ; algebra, astronomy, calculus, conic sections, engineering, geometry, analytical geometry, descriptive geometry, natural philosophy, (*i. e.* physics in all its branches), leveling, navigation, perspective, surveying, and trigonometry : under *ancient languages* ; Greek, Latin, Grecian antiquities, Roman antiquities and mythology : under *modern languages* ; French, German, Italian and Spanish : under *natural sciences* ; anatomy, physiology, hygiene, botany, chemistry, geology, meteorology, mineralogy, natural history, technology, and zoölogy : and finally, under *moral, intellectual and political science* ; criticism, christianity (evidences,) general history, history of the United States, history of literature, natural theology, intellectual philosophy, moral philosophy, constitutional law, logic, rhetoric, political economy and the principles of teaching.

Of this system and this programme, the regents of the university, in their eighty-first annual report, remark as follows : " Though these subjects are voluntary with the scholar, and he is permitted to exercise an almost unrestrained freedom of choice, many pursue them all, while others select those to which their peculiar taste prompts them, or which the expected employments of life seem to demand. Young men have often thus been brought from the humblest position in life to commence their studies without any

design or expectation of making them exclusive; but as their intellects have been developed, and their desire for knowledge strengthened, they have successfully grappled with difficulties, every new struggle giving them additional power, until the highest means of education have been reached, and they have gone forth into the world to grace the most honorable and responsible positions in society."

The academies of the State of New York fulfill a double function. They are at once schools of elementary training, and schools of superior culture. In the advantages of elementary instruction which they offer, all their pupils more or less participate; the higher instruction benefits a more limited number. Were they restricted solely to this superior function, they would occupy the grade and perform substantially the work of the German gymnasium. And that portion of their pupils who pursue the higher course of study correspond approximately in respect to age with the student body of the college as we may presume it to have been from fifty to one hundred years ago. We find, in fact, that of the total number of pupils who were, at one time or another, in attendance upon all the academies of the state, in 1869, (the year embraced in the last published report of the regents)—a total exceeding thirty thousand—about one-third part, or over nine thousand, were engaged in pursuing classical or higher English studies; and the average age of this portion is given at sixteen years and four-tenths. This is the average age of students in a college in which the course of study covers four years, and the students enter as freshmen between fourteen and fifteen.

The total number of the academies in the State, according to the report just cited, is two hundred and twenty-four; but of these there were only one hundred and ninety-eight from which returns had been received. The numbers given above ought perhaps, therefore, to be increased about one-eighth. But these numbers, being the aggregates for the year, should be checked by the reports of average daily attendance. The average daily attendance in one hundred and ninety-eight academies was thirteen thousand three hundred and eighty-two; and the average daily attendance of the higher class of pupils would accordingly be reduced to four thousand and fifty-seven; so that if allowance be made for academies not reporting, it may be stated, in round numbers at forty-five hundred.

The existence of a class of schools of this high character, in which perfect freedom is allowed in the choice of studies, can not but have something to do in turning away students from the colleges which

(in their programmes) profess to teach nothing more, but in which the choice is completely fettered. It is in this manner only that a satisfactory explanation can be found of the fact that the State of New York furnishes to the regular colleges of the country a very exceptionally small number of undergraduate students in proportion to the aggregate population. From the returns of the ninth census of the United States it appears that the population of the State of New York amounts at present to 4,374,499. From the collected catalogues of the principle colleges of the Union, amounting to more than one hundred and fifty in all, it appears that the total number of undergraduate students in the department of Arts in these, from the same State, is thirteen hundred and seventy. The State furnishes, therefore, only one undergraduate student to the colleges for every three thousand one hundred and ninety-three inhabitants; while New England furnishes at the same time, one to every one thousand nine hundred and fifty-seven. Now of the forty-five hundred students of the higher class in daily attendance in the academies, at least a fifth part may be assumed to be pursuing the advanced studies of the programme, such as correspond to the later years in college. And if we increase the actual number of undergraduates found as above for New York by nine hundred, the fifth part of forty-five hundred, the result will be to give a proportion of students to population of one to one thousand nine hundred and twenty-seven, very nearly the same as in New England.

There is, moreover, additional evidence that the attractions of the academies sensibly affect the attendance on the colleges, to be found in a more particular examination of the returns of the several academies taken separately, in regard to the ages of their advanced pupils. The average age of all these pupils, in all the academies, is as above stated, sixteen years and four-tenths. But the average age of this class is very different in the different academies; and it is by no means to be presumed that all these institutions, any more than all the colleges, are of one uniform grade of excellence. Accordingly it appears that, whereas in a large number, the average age of the pupils reported as belonging to the advanced class is as low as fifteen or lower, yet in many it is above eighteen, in some above nineteen, and in several even above twenty. Thirty-nine of the academies, in fact, have an aggregate attendance of pupils pursuing advanced studies amounting to two thousand two hundred and eighty-seven, return the average age of these students as above eighteen years. Of this aggregate, two thousand and sixty-nine are between eighteen and nineteen; one hundred and twenty-six be-

tween nineteen and twenty; and ninety-two above the age of twenty. The ages of these students correspond to those of college students, and the studies they are pursuing are similar in character to those which are pursued in college. It can not be doubted that some of this large number have chosen the academy rather than the college, on account of the greater freedom which they find there in the selection of their studies.

It is not to be presumed that the teaching of the academies in the higher branches of study can in general compare favorably with that of the colleges, as it respects either method or thoroughness; but it would be unjust to apply this remark universally. That there is great inequality among them, both as it respects efficiency and as it respects the instrumentalities of instruction, is distinctly stated by the regents in their report, in which they say, "if with our present experience, we were to commence our academical system anew, there is little doubt that seventy-five or one hundred academies properly distributed through the state, would, by their strong staff of teachers, their considerable libraries and well selected apparatus, do more effectual service in the cause of education than the present large number of institutions; as many of these, from their want of sufficient endowments and adequate support, are compelled to do much of their work imperfectly." But many of them are schools of very superior merit and efficiency, and these are doing, at the present time, a great part of that work of disciplinary education which has been so much insisted on as being the proper work of the colleges. It is by these schools that the colleges are principally fed, as in Germany the universities are fed by the gymnasia; and it is to be presumed that, in progress of time, by the strengthening and elevation of both, these two classes of institutions, thus independent of each other but still intimately related, may create upon this continent a system of superior education practically parallel with that of continental Europe. All our colleges, it is true, can not become universities. If the change here anticipated should go on, some will continue to maintain but a secondary rank, some will probably be absorbed by others, and some will perhaps at length become extinct. It is true already of these institutions, as the regents have found it to be of the academies, that their number is greatly in excess of the wants of the country, and that the efficiency of the system would be materially promoted, if it could be reduced.

The principle objection to the elective system of study has always been that which is derived, as above stated, from the theory of a liberal education considered as demanding a well-rounded develop-

ment of the faculties. We have seen that the force of this objection rests upon an assumption which can no longer be admitted—the assumption, namely, that the college student is throughout the course of that tender age in which educational influences may do a great deal more than merely to brighten and invigorate such faculties as he has; in which such influences may in fact actually give them shape and form, and evolve or repress them at pleasure. Other objections have been suggested of less apparent weight, which still should not be permitted to pass without examination, nor without an attempt to provide securities against the dangers which they indicate. If the choice of studies is free, young men, it is said, will exercise it capriciously, and will possibly pass from subject to subject without continuing long enough at any one to derive from it substantial advantage. By granting freedom of choice, however, it is not to be presumed that such a freedom is intended as would permit a student to change from day to day, or from week to week. The study which is chosen must be chosen as a whole, and must be pursued to the end, or to the end, at least, of some branch of it which is complete in itself. This rule will prevent capricious changes, and will secure at least as much continuity of attention to particular subjects as the ordinary curriculum allows; for the very fault of the ordinary curriculum is that, during the later years at least, it presents so large a number of subjects that long continued study of any one of them is impossible.

But it is further objected that the free exercise of choice permits a selection of such studies as present the fewest difficulties; and thus plays directly into the hand of the careless and inefficient student. To this it may be replied, as the result of a pretty long observation, that the incorrigibly idle are not perceptibly improved in diligence by being compelled to pursue difficult studies. In every considerable body of students there will always be some such. And it is truly marvelous to remark how very closely such individuals manage to run to the very minimum of attainment required to save them from being dropped from the rolls as hopelessly deficient. Now the benefit which such individuals can derive from being compelled to pursue what they call “hard studies,” are insignificant in comparison with the harm they do to others, who, being yoked with them in the same classes, are hampered in their progress by their dullness or their willful neglect of study. It is one of the great advantages of the principle of election, that these drags upon progress are effectually eliminated by it; so that the strong men and the willing men can go along together and turn their strength and

their zeal to substantial account. The man who, at the age of nineteen, which in Columbia College is the age of entering upon the junior year, can be so indifferent to his own improvement, and so averse to mental effort, as to choose his studies deliberately with a view of getting rid of work, can hardly be constrained to work upon studies chosen for him. And the experience of our own college, which, though brief, is still worth something, indicates that facts are not likely to justify the apprehension on which this objection is founded.

It may be regarded as nearly certain that, in the case of every student as to whom it is of the slightest consequence one way or the other what he chooses, the choice will be determined not by caprice nor a pitiful desire to shirk labor; but by a natural taste or liking for one subject rather than another, or by an honest desire to know. The preliminary and more elementary part of the course furnishes the opportunity to compare different subjects, so far as to enable the student to judge what he is likely to pursue in its larger development with the greatest satisfaction and therefore with the largest substantial results; and upon the basis of this knowledge his choice will be made. That this is true is made almost demonstrably evident in the selections of elective studies made at the beginning of the last academic year by the members of our senior class; when the study commonly reputed to be the most difficult (metaphysics) was chosen by two-thirds of the class; while that which passes for the easiest, and to many is the most fascinating, (chemistry) was chosen by fewer than one-fourth.

That the elective system is not at present more largely adopted in American colleges is owing, in good degree, to the fact that it increases considerably the number of exercises which the officers are required to conduct; and imposes very soon the necessity of enlarging the academic staff. The question is not therefore purely an educational one; but it is complicated by economical considerations. It is not possible that the system should be introduced into all the colleges; and out of this circumstance is likely to grow, sooner or later, a classification into grades. Out of the higher grade, embracing the smaller number, will probably be developed the universities, if we are to have such, which are to rival those of continental Europe. The lower will remain what they are or will disappear.

It is now about eighteen months since the elective system was introduced into Columbia College to a limited extent and applied to a portion of the studies of the senior year. The results of the

first experiment, as stated in the brief notice given of it in the last annual report of the president, were so satisfactory, as to induce the committee on the statutes to authorize its further extension. After the lapse of another year, the president is prepared to speak with greater confidence than before, and in terms of more decided satisfaction. As it was last year stated that the senior class had never before been so steadily attentive to study up to the close of the year, so it may be said at the present time that the diligence of the class throughout the whole year has been to a very marked degree satisfactory. The officers have noticed a greater manifestation of interest in the subjects studied than has been observed in former years; and they agree, it is believed, in ascribing this result to the fact that the studies are voluntarily chosen.

It is not perhaps practicable for us for the present to give to the elective system a larger extension than it has already received. In order that, among the studies submitted to the choice of the student, it may be practicable to select any desired combination at will, it is necessary that the scheme of attendance shall be so arranged that the hours allotted to all these studies may be different. In Columbia College at present, the exercises occupy only three consecutive hours in the morning of each day, giving to each class fifteen hours per week. Of these fifteen hours, about half must be devoted to the required studies of the course; so that only seven or eight at furthest remain available for the optional studies. In consequence of this, it has been found thus far impracticable to construct the scheme so as to prevent different optional studies from falling upon the same hour; but the studies coinciding have been generally those between which the election would naturally fall; and thus the latitude of choice maintained has been greater than would at first appear. The plan is one, however, which can be carried no further; and it would be better if it were not carried so far.

No remedy presents itself for this difficulty, but to extend the exercises over a larger number of the hours of the day; and this is what, ultimately, if the system is maintained, will have to be done. But in making such an extension, it will inevitably happen that there will occur occasionally hours in which a class or portion of a class will have no exercise; and for the profitable employment of these at such intervals, it is impossible at present to make provision. This would be no embarrassment but rather an advantage, if accommodations could be found in the college building for the unoccupied classes, so as to enable them, with the aid of their textbooks and other authorities, to read up the subject of the ensuing

lecture. In fact, after considerable observation of the varying practices of colleges in the distribution of their time, we are clearly of opinion that it is much more profitable to the student to alternate study with his lectures or recitations, than to prepare all his exercises for an entire day at once, and afterward give his attendance in the class-rooms for three consecutive hours. As the long-continued strain upon the mental faculties in continuous study is wearying in one way, so the long-continued bodily confinement in successive classes is wearying in another. By breaking up these protracted periods, and alternating briefer seasons of active effort with intervals of comparative repose, it seems reasonable to believe that more beneficial results may be secured, as it respects both the culture of the mind and the health of the body. It is an advantage enjoyed by colleges in which students and instructors reside together and form a compact community, that any division of the day which seems best, may be adopted with equal convenience. This advantage may also be enjoyed by colleges in country villages, whether they provide lodgings for their students or not; for neither students nor instructors, can, in such places, be remote from the academic centre. But the same is not true in large cities, though to a certain extent it may be made so, by providing, as just suggested, convenient apartments in which students may study in common during the intervals between the academic exercises.

II. GRAMMAR, BURG, AND OTHER SECONDARY SCHOOLS.

HISTORICAL DEVELOPMENT.

I. Schools for Latin, to which were subsequently added "Lecture" schools for English, existed in the chief towns of Scotland from a very early period. We have authentic notice of a school in Abernethy in 1124. The schools of Perth and Stirling were in existence in 1173, and charters quoted in Chalmers's *Caledonia* mention other schools, both in the twelfth and the subsequent century. It would serve no good purpose to enumerate them all, but we may specify St. Andrews, whose school was under the charge of a rector in 1238; Aberdeen and Ayr, of which we have notices in 1262 and 1264; Montrose, which had the honor of receiving a small endowment from Robert the Bruce in 1329; and, speaking generally, it may be said that all the chief towns, and many that have since sunk into obscurity, had schools, such as they were, before the beginning of the sixteenth century. The Statute of the Scottish Parliament in the reign of James IV., (1494), which ordains that barons and freeholders who were of substance should put their eldest sons or heirs to the 'schules fra they be six or nine years of age, and to remain at the Grammar schools quill they be competentlie founded and have perfite Latine,' is conclusive and satisfactory proof on this point.

These schools were under the direction of the Church, and were closely connected with the cathedrals, monasteries, and other religious establishments of the country. Thus, the monks of Dunfermline were directors of the schools of Perth and Stirling; Ayr school was connected with the church of St. John the Baptist; the monks of Kelso were directors of the schools in the county of Roxburgh. Our first authentic notice of the schools of Dundee is a document in the "Register of the See of Brechin, in 1434." - In that year, a priest ventured to teach without the authority of the Chancellor; and was in consequence summoned before the Bishop, and after duly acknowledging his offense was deprived of his office. The burgh of Edinburgh provided a school-house, and paid a salary to its teacher, at least as early as 1500; but the High School itself was dependent on the Abby of Holyrood; and as late as 1562, Lord Robert Stewart, a natural brother of Queen Mary, was recognized by the Town-Council as patron of the High School, in virtue of his office as Commendator of the Abbey. Later still, in 1596, thirty years after the patronage had been handed over to the Town-Council, the rector of the school, who had then held his office for twelve years, thought to secure himself in his position by purchasing "a gift of the Grammar School" from the Abbot of Holyrood. For this and other offenses he was dismissed by the Town-Council. The Glasgow Grammar School,

* *Third Report of the Commissioners appointed to inquire into the Schools in Scotland, 1868.*

which existed early in the fourteenth century, was dependent on the cathedral church, and the Chancellor of the diocese had the appointment of masters and the superintendence of education in the city. An offending priest, in 1494, who had presumed to teach grammar and other branches without due authority from the Chancellor, was summoned before the Bishop, and ordered to desist. In Aberdeen the early usage was as follows:—The Town-Council presented the master to his office, subject to the approval of the Chancellor or the Bishop, who instituted the presentee. We find frequent notices of this from 1418 downwards. The terms of the appointment of Rector in that year are in substance as follows: "The Chancellor of the church of Aberdeen to all the faithful—greeting: Inasmuch as the institution to the office of schoolmaster belongs to me as Chancellor, and an honest, prudent, and discreet man has been presented to me by the Provost and Council of the burgh, and on examination has been found duly qualified, I have by letter of collation instituted him in the office *for the whole term of his life*." Incidentally, the last words ("*pro toto tempore vitæ suæ*") are important, as showing the tenure of office in those early times in Aberdeen.

The teachers in these early schools were ecclesiastics, or in some way connected with the cathedrals or monasteries, and we find notices of alter-ages devoted to them for their services in teaching. When learning, such as it was, had ceased to be the exclusive property of monks and priests, qualified masters, who were laymen, taught in the chief towns of Scotland; but as late as the year 1519, the rector of the High School of Edinburgh was obliged to attend at the Abbey in his surplice, to assist at "hie solempne festival times," to be present "at the hie mess and evensang," and to make himself otherwise useful in the chapel.

The scholars also, like their teachers, were originally, no doubt, those destined for the Church. Gradually, however, the sons of the gentry, and of barons, without reference to their future career, were sent for their education to these schools, and from the beginning of the second, or more flourishing period of their history, all the higher and middle classes took advantage of them.

The chief subject of instruction in the early Grammar schools was Latin. It was the language necessary for ecclesiastics—in which their rubrics, canons, liturgies, and the Bible itself was written, and above all, it was that in which the correspondence of the Church all over the world was carried on. Greek was a language that the priests did not know, and the Church, in Scotland at least, did not encourage; and, strictly speaking, Latin was the only subject included in the term Grammar, and Latin the only language taught in the Grammar schools as such. As a matter of fact, however, in learning Latin itself there was necessarily involved the translation from it as a dead language into some living tongue. If we may judge by the analogous case of England, that tongue would be French. This was the custom in England as late as the year 1850, when the innovation was first brought in by a schoolmaster, John Corn-

wall, of making his boys read Latin into English. Only in so far then as it was necessarily involved in learning Latin, did the Grammar schools teach English; and a special class of offenders before and after the Reformation were those scholars who ventured to speak in the vernacular. Hebrew, French, Latin, Greek, even Gaelic, were allowed to be spoken by the regulations of Aberdeen in the sixteenth century, but no English.

The origin and growth of the "Lecture" schools for English, and subsequently for arithmetic and writing, are to be gathered only from scattered hints. Like the Grammar schools, they were under the jurisdiction of the Church. We have an illustration of this in the case of Glasgow, already referred to. The Chancellor of the diocese in 1494 successfully maintained that no one, without his license or authority, should be allowed to teach scholars in grammar, nor children in the elementary branches within the city ("*nulli liceat scholares in grammatica, aut juvenes in puerilibus per se clam aut palam intra prædictam civitatem instruere et docere.*") Writing was not probably a common branch of education so early as English, and this for two reasons: it was exceedingly difficult to acquire, as any one will readily acknowledge who attempts to imitate the handwriting of the twelfth and two succeeding centuries; and, secondly, there was no substance like paper in common use before the beginning of the fourteenth century, so that practice in the art was not easy to be attained.

On the whole, there is no reason to suppose that these lecture schools were numerous, or that any of the Grammar schools were very important or did much more than exist during the century before the Reformation. Even Scottish writers acknowledge that at the beginning of the fifteenth century there was no great school in the country, and that in consequence all those who were desirous of a liberal education had to seek it abroad. The enactment of 1494 only proves the state of ignorance in which Scotland then was, and the awakening consciousness of its rulers that they were bound to remedy the evil. It refers only to the eldest sons, and heirs of barons and freeholders of substance. Nothing is said in it of the younger sons of barons and freeholders, nor of the common people, nor of girls of any condition whatsoever; and we may suppose that education at our Grammar schools was then confined very much to future ecclesiastics and to the persons indicated in the enactment. The "perfect Latin" was no more than could be picked up through indifferent grammars, and from reading a very few writers of antiquity. In the most favorable view, and if we substitute 1450, the year of the founding of the first college in St. Andrews (the University itself had been created in 1411), for the year 1400, Hallam's description of education in England may be transferred to Scotland. "On the whole," he says, "we may be inclined to think that in the year 1400, the average instruction of an English gentleman of the first class would comprehend reading and writing, a considerable familiarity with French,

and a slight tincture of Latin, the latter retained or not according to his circumstances and character, as school learning is at present."

II. In the first half of the sixteenth century two schools stand out pre-eminent, those, namely, of Aberdeen and Perth. In the year 1520, John Vaus, a scholar of note in his day, was rector of the former. He deserves being remembered as the first Scotchman who published a Latin Grammar. It was printed in Paris in 1522, and afterwards republished in Edinburgh in 1566. A great part of the book is in Scotch—the indicative mood, for example, is entitled "Schauand Mode," and the optative, "Yarnand Mode." There is also a directory of the school of Aberdeen, of the date 1553, which regulates the instruction, the discipline, and the hours of study. The school was under the charge of a headmaster, styled the rector, and two or more ushers. Among the authors studied, Terence, Virgil, and Cicero are especially mentioned. The younger students are enjoined to acquire a moderate knowledge of arithmetic. From one paragraph, where all are ordered to "speak in Latin, Greek, Hebrew, French, Gaelic, never in the vernacular tongue," we might infer that other dead languages as well as Latin formed a part of the course; but it would be a rash induction, and is not warranted by any thing else in the directory, nor by historical evidence of any sort.

Perth school was widely celebrated as early as 1550. Simson, the author of the *Dunbar Rudiments*, used more or less for a century afterwards in our schools, was its rector. He had sometimes three hundred boys under his charge at once, including sons of the principal nobility and gentry; and from his school proceeded many of those who afterwards distinguished themselves both in Church and State.

Next to religion, there was nothing in which Knox and the early reformers were more interested than education, and in compiling the First Book of Discipline in 1561, they laid down certain regulations about schools and colleges, which if they had been carried into effect would have given us before now an almost perfect system of education. They required that a school should be erected in every parish for the instruction of youth in the principles of religion, grammar, and the Latin tongue. They proposed that a college should be erected in every notable town, in which logic and rhetoric should be taught along with the learned languages. They seemed to have had it in their eye to revive the system adopted by some of the ancient republics, in which the youth were considered as the property of the public rather than of their parents, by obliging the nobility and gentry to educate their children, and by providing at the public expense for the education of the children of the poor who discovered talents for learning. Their regulations for the three national universities discover an enlightened regard to the interests of literature, and may suggest hints which deserve attention in the present day.

Unfortunately the regulations in regard to colleges, by which term were really meant Grammar schools on the model of those more ancient

seminaries in which the "trivium" or course of three sciences was taught, were not carried into full effect. No legal enactment followed upon them.

In a few cases certain endowments were taken from the church possessions and attached to the office of the grammar-schoolmaster. Thus in Edinburgh, in 1562, the Town-Council applied to the Queen, through the patron of the High School, "to disburse and grant to the town the place, yards, and annuals of the fiars and altarages of the Kirk," that they might be expended on the master and doctors of the school, and on the regent of a college to be built within the burgh; and in 1566 they obtained from Queen Mary a gift of the endowments in Edinburgh which had belonged to the Dominican and Franciscan monks for these purposes. In Dundee, in the year 1568, there was an allocation of the Hospital funds between the ministers and the schoolmaster. The latter received as his portion a share of one of the ecclesiastical foundations, and from this source the rector of the Grammar school still receives £11 of his salary. In Brechin, the preceptory of Maisondieu continues to the present time to be attached to the office of the rector, and yields an annual sum of £50. In Renfrew the Hospital was suppressed in 1614, and the income of the altarages and chapels that composed it was conferred upon the Grammar schools.

In other towns, Kirkwell (endowment by Bishop Reid in 1544), Elgin, Banff, Dunfermline, and Irvine, similar endowments were made from the Church lands for the Grammar schools; but on the whole, very few and miserably small crumbs seem to have fallen to the schoolmasters' share in the general distribution and division of Church property. Those intended for them by the compilers of the First Book of Discipline, it is generally allowed, were intercepted by the avarice and greed of the nobility and gentry, and the Grammar schools more especially seemed to have been left to the Town-Councils and others, by whom they were originally founded and maintained, without any assistance from the national resources.

In several towns there were private endowments, as of Rev. John Howieson in Cambuslang, in 1602; of Prestonpans, for a trilingual school for the teaching of Latin, Greek and Hebrew, by Rev. John Davidson.

By a very scanty share of the Church spoils, and a few private bequests and royal grants, but mainly through the voluntary action of the burghs themselves, a Grammar or Burgh School was in operation in every royal burgh of Scotland. In respect to the absence of legislative enactments and the higher branches taught, they are separated altogether from the Parish schools, which were due to successive enactments of the Legislature in 1616, 1638, 1646, and finally in 1696, and which were intended mainly for the ordinary branches of education. Neither does there seem, as far as Statutes go, to be any legal obligations on burghs,

from the earliest times to the present day, to maintain them where they have been founded.

The patronage of the schools was vested in the Town-Councils of the different burghs, but the Church also was entitled to a superintendence over them. The election of the masters belonged exclusively to the Town-Council, but the teachers were liable to the trial, judgment, and censure of the Church established for the time, as to their sufficiency, qualifications, and deportment in their office. It was derived in the first place as a natural inheritance by the Church of the Reformation, which succeeded to all the claims of its predecessor over education; and in the second place, it was guaranteed by successive Acts of Parliament from 1567 to 1706, of which these are the chief:—1. It was enacted in 1567 in regard to all schools, “to burgh and land, that none be permitted to have charge and care thereof in time coming, nor to instruct youth privately or openly, but such as shall be tried by the superintendents or visitors of the Kirk.” 2. An Act of the year 1693 declares that all schoolmasters and teachers of youth in schools are and shall be liable to the trial, judgment and censure of the Presbyteries of the bounds for their sufficiency, qualifications, and deportment in the said office. 3. By the Act of 1706, passed for securing the Presbyterian form of church government, it is ordained that no Professors, Principals, Regents, Masters, or others bearing office in any university, college, or *schools* within the kingdom, be admitted or allowed to continue in the exercise of their function but such as shall subscribe the Confession of Faith, and conform themselves to the Church, and submit themselves to the government thereof, and that before the respective Presbyteries of their bounds, *by whatsoever gift, presentation, or provision they may be thereto provided.*

These Acts belong to periods when Presbyterianism was in the ascendant, but there are others in the intervals when Episcopacy superseded the Kirk between 1606 and 1646, and again from 1662 till the Revolution, equally stringent. Their scope may be judged of by the articles transmitted by King James to Scotland after the conference at Hampton Court in 1604, by which he recommended that “schools in cities, towns, and families throughout all this kingdom be taught by none but such as shall be approved to be sound and upright in religion, and for that effect that the Bishops should take order with them, displacing the corrupted, and placing honest and sufficient in their places,” and by the Statute passed in 1609, requiring pedagogues to have a sufficient testimonial from the Bishop of the diocese before going out of the country with the children of the nobility and barons.

After the Disruption or Secession from the Established Church in 1843, the question of Presbyterian superintendence naturally assumed greater importance. Up to that time it had been either little exercised in burghs, or, when exercised, it had been submitted to more or less readily in the less important towns. The first case that arose after 1843 was that of

the schoolmaster of Campbelton, who joined the Free Church, and was deposed from his office by the Presbytery of Cantyre. "He suspended the sentence, and applied for interdict, and so the question was raised of the jurisdiction of the Presbytery under the Statutes. The suspender pleaded that he was the master of a Burgh school, and so did not hold his office subject to the jurisdiction of the Presbytery, who had no cognizance over schools properly burghal. The respondents contended that the school was a proper Parish school, and was so to be dealt with. Parties were thus at issue on two points, one of fact, and the other of law. The Lord Ordinary by his interlocutor found, that whether the school was to be considered as a proper Parochial school or not, it was at all events sufficiently possessed of the character of a public institution to fall in virtue of the Statutes under the jurisdiction and superintendence of the Presbytery of the bounds, and therefore repelled the reasons of suspension. In a note, his Lordship stated that he should have leant to the opinion that the characters of a burgh establishment more naturally attached, but he had not found it necessary to decide this question, for, regarding the school even as a Public Grammar school for the burgh, he had no doubt that it fell within the scope of the Statutes of 1693 and 1706." Against this judgment no appeal was taken.

About the same time, and in somewhat similar circumstances, the well-known case of Elgin Academy arose, and practically settled the right of Presbyteries to a certain jurisdiction and superintendence over Burgh schools. This Academy was erected in 1800. Prior to that date, and as early as 1585, a Grammar school existed in the burgh, and in connection with it, in 1620, a school for teaching music, or a "Sang school." This last-mentioned school was in 1659 converted into an English school. These two schools existed side by side till 1800 as the two public schools of the burgh. In that year they were united, the buildings in which they had been taught were disposed of, and a new building was erected for the accommodation of the united school. Additional branches of education were introduced, and additional masters were appointed, but the establishment, though thus improved and extended, retained still its public character, and continued to be the public school of the burgh of Elgin, under the management and patronage of the magistrates.

Ultimately, judgment was pronounced in 1861 to the effect that—
(1.) The Grammar and English schools formed a Public Burgh school; and (2.) That the masters were subject to the jurisdiction, superintendence, and control of the Presbytery.

It was in consequence of this decision that the Burgh and Parochial Schools Act of 1861 was passed, by which, among other important measures, Burgh schools were relieved from the superintendence of the Church. Their masters are no longer bound to subscribe the Confession of Faith, nor obliged to submit to the discipline of the Church of Scotland, nor are they subject to the trial, judgment, or censure of the Pres-

bytery for their sufficiency, qualifications, or deportment in their office. In a word, all connection between the Church and the Burgh schools was broken by this Act, which forms, consequently, an important era in their history.

As a matter of fact, however, the Town-Council, in the large towns more especially, were the supreme rulers of the schools established by public authority in the burghs. As one means of encouraging them, they strictly interdicted private teachers, and from the earliest times down till the end of the last century, we find them exercising their powers with great rigor and cruelty. In Edinburgh, in 1519, forty years before the Reformation, it was enacted that no indweller within the burgh should have his children taught Latin at any other than the Grammar School, under a penalty of ten shillings Scots. More than a hundred years afterwards, in 1680 and 1660, we find successive rectors attributing their ill success, and the falling off in the number of their scholars, to the toleration of unlicensed teachers, and the following resolution was in consequence passed in 1665:—That no persons, upon any pretence whatever, shall teach grammar within the city or liberties, except those who are authorized by the Town-Council, and that no inhabitants of the city shall send their children to any other than the public schools; offending teachers to be personally imprisoned, and fined, at the discretion of the magistrates, and offending parents to pay quarterly to the master of the High School as much as other scholars of the like quality are usually accustomed to pay. That this Act might find the more ready obedience, it was further ordained,—That the master of the High School, or any of his doctors authorized by him, should have power from the magistrates to command any two or more, if need be, of the town officers, to apprehend and imprison such as, by their contumacy and disobedience, should be found guilty of the breach thereof.

In this attempt to suppress Adventure schools, the Edinburgh magistrates were backed up by the Privy Council in 1680. The latter issued a proclamation in that year, interdicting all private Latin schools in the city or suburbs; and the individuals against whom the proclamation was directed were forced to make the following declaration:—"We, whose names are subscribed, keepers of Latin schools within this city, bind and oblige us to conform to the Court ordinance, that we shall, before the term of Whitsunday next, cease and forbear to keep Latin schools, by teaching children within the city or privileges thereof; and shall not in time coming take upon us, each of us, for our own parts, to teach Latin or keep a public or private school for that effect in any time coming, under such a penalty as the Town-Council shall think fit to impose upon us." It would seem, however, as might naturally be supposed, in a large city like Edinburgh, that these enactments were not absolutely successful, and needed constantly to be repeated, for, in 1724, the question of Adventure schools again came up before the Council, and a series of resolutions was passed upon the subject, to the effect that Private schools,

as then increased in number, under bad management, and wanting order and discipline, were not only prejudicial to the public masters and public teaching, but also hurtful to the manners and education of the youth; that none ought to be allowed to teach grammar within the privileges of the city without authority from the Council; and that the five High School teachers, *with five private teachers in addition*, tried and licensed, were sufficient for the youth of the city.

Nor were the other burghs slow to follow the example set them by the metropolis. In Ayr, on the appointment of a rector to the Grammar School in 1666, all other Latin teachers were interdicted except him and his doctor, and intimation was sent through the town "by tuck of drum," that the youth might be entered in the public school, and a like prohibition was extended to unauthorized teachers of music and English, or, as it is called, Scotch, in 1688. Burntisland, in the seventeenth century, allowed no private schools, except those of women, who were permitted to teach "lasses and young children." Peebles also, in 1658, prohibited women who kept schools from teaching any male child, under a penalty of twenty shillings Scots for each offense. In 1690 there is the following entry in the Town-Council records of Banff:—"The Magistrates and Town-Council, taking into consideration the great decay of the Grammar School, partly occasioned by the inhabitants detaining their children from it, yea, even those that are able and in a condition, without their prejudice, to maintain them thereat, and others putting them out of town to landward schools, ordain therefore that all the inhabitants' children be immediately put thereto, only to such schools as are set up by the Magistrates' authority, strictly prohibiting any person to take upon hand to teach children without the Magistrates' and Council's order, and that such of the inhabitants' children as are come to age, and so not fit for schools, be put to trade, under the pain of banishment." In Dumfries, as late as the year 1767, we find a notice in the Town-Council records, forbidding an unauthorized teacher of writing to exercise his calling, and after he had thus been deprived of his means of living, ordering him "to find sufficient caution that he and his family shall not be a burden on the place, under the penalty of £10 sterling."

In a word, adventure teachers, up to the beginning of the present century, were everywhere discouraged, as poachers on the ground of those licensed by public authority; and both in town and country, by magistrates and presbyteries, they were treated with great indignity, almost in some cases as vagrants, by which term they are actually designated in Church records, at least down to the year 1802.

Internal Economy of the Ancient Burgh Schools.

The earliest directions for the discipline, studies, fees, and other details of internal administration are those of the Aberdeen school in 1553. It

* The following Account is taken from *Third Report of the Scotland Education Commission*, submitted to both Houses of Parliament in 1868, *Special Report of Inspector Fleuren on the Burgh Schools of Scotland*, 1869.

lays down a series of laws from the first hour of meeting in the morning till the hour of dismissal in the evening. Preparatory to the business of the day, each boy as he entered the school was to offer a short prayer, the form of which was prescribed to him. The school work commenced at seven o'clock, and the first duty of the head master on his entrance was to chastise offenders, either by word or by stripes. This was followed by prelection and by lessons that lasted till nine o'clock, when all were directed to hasten to breakfast. Lessons were resumed from ten to twelve, when all were again dismissed. Work began once more at two, and lasted till six, when the boys ended the day with prayer, as they had begun it.

The enactments in the same directory relating to the scholars entered into minute details. Elementary scholars and neophytes were to observe a Pythagorean silence for a whole year. The seniors, if they spoke at all, were to avoid their own language, but were allowed full liberty in Latin, Greek, Hebrew, French, and Gaelic. They were to engage in no play except in the presence of an usher. All games of chance for serious stakes, money, books, or part of a boy's dinner, were strictly forbidden, except in the case of the senior boys, who might play for trifles, such as leather pins or thongs. A catalogue of offenses that subjected the youth to punishment closed this rigorous directory. The disobedient, those who came late to school, those who had not prepared their lessons, those who unnecessarily shifted from form to form, those who ran about the school, the authors of mischief (an alarmingly vague expression), were the main classes of transgressors.

In the Elgin directory of 1649 (issued by the Presbytery, however, and not by the Magistrates), work began at six o'clock in the morning and went on till six in the evening, with two hours' intermission—one for breakfast and one for dinner. Tuesdays and Thursdays were half-holidays, on which the boys had play from two to four; and Saturday's work was light in comparison with that of the other days of the week. Its programme was as follows:—"Disputes begin at seven o'clock, first in the supreme class (the master being auditor), and the disputants standing the one at the one end and the other at the other end of the school (deep silence meanwhile). Thereafter, a little before eight, the examiners or auditors of the several classes dispute before nine, the master taking account of victors and vanquished, and praising or censuring accordingly. Betwixt ten and twelve all are taken up in writing their author for the next week, and an account is taken before twelve o'clock. At one, afternoon, all meet, and they are dismissed to play at two, afternoon, till five, when they are called, and an account taken of the general censure." The rules for boys were much the same as in Aberdeen. They are not allowed to play except in the presence of an usher or censor, and the offenders liable to punishment were "absentees from school, swearers, English speakers, perturbers, vaguers, the idle, late comers;" and a general class of offenses, involving all other breaches of the law,

is grouped under the expression "delinquencies within and insolencies without the school."

Even Sunday itself was not a day of rest to the teacher. In the Elgin directory the arrangements were as follows:—"Upon the Lord's day masters and scholars shall convene in school at eight o'clock in the morning, and after prayer in the English tongue to be had by the master, the several classes shall be exercised, the seniors in the exposition of a sacred lesson which has been taught betwixt one and two o'clock of the preceding Saturday, out of Buchanan's Paraphrases of the Psalms, or Ursine's or Calvin's Catechisms; and the juniors, in getting by heart some select English psalms, or the ordinary allowed Catechism. Thereafter, at the second bell, all shall go in comely order to church, accompanied with masters before and doctors behind, if any be. Again, they are to return to school in the afternoon at the first bell, where they are to be exercised till the second bell in reading their foresaid sacred lesson, and at the second bell to repair to the church orderly, as in the forenoon. After noon they shall return incontinent after the same order, with master and doctors, to school, when, after a short prayer had by the master, expressing thanks to God for the liberty of his own day, and the use of his ordinances, and supplication for his effectual blessing unto them, the master settling himself in desk, and all the scholars in deep silence, he, according to his discretion, shall call up some of every class, and require of them their observations of both the sermons, and enlarge points to them occasionally for their capacities as they have been taught; and after a large hour's space, having ordained them to keep within doors, exercised in the study of their sacred lessons and meditations of what they have been hearing, he shall dismiss them with psalms and prayer."

The directory of Peebles Grammar School in 1655, was almost identical with that of Elgin, both for Sunday and week-days, and will be found in the special report on the school. The regulations of Dunbar in 1679 entered minutely into the question of discipline, and defined the exact temper and method with which punishment should be inflicted. "If children," they say, "may be won by words or threatenings, it is expected that the masters will make use of prudence in their actions, and spare the rod as long as it may consist with the good of the children; but if neither fair words nor threats will gain them, then shall the masters show, both by their words and countenance, an aversation to passion and a dislike to the action, with suitable expressions to that purpose, in which humor they may correct; so that they may be as angry as they will when they intend not to correct, but not to be passionate when they correct, mere necessity for the welfare of the children compelling them to it, but not for every trifle to stupefy them with strokes." The same regulations also limited the ordinary play time to an hour and a half on Tuesdays and Thursdays, and the afternoon on Saturday.

Early Morning and Sunday Work.

In Edinburgh the hour of meeting was first changed about 1640 from

six to seven o'clock. In 1696 a further innovation was made in the winter months, when the school did not open till nine o'clock. The afternoon attendance was also gradually curtailed, and the school hours in 1754 were, in winter, from nine till twelve, and again from three till five; and in summer from seven till nine, from ten to one, and from three to five. In 1790 the summer hour of meeting was the same. This is incidentally mentioned by Lord Cockburn in his *Memorials of his Time*. "They had the barbarity," he says, "to make us be in school during summer at seven in the morning. I once started out of bed, thinking I was too late, and got out of the house unquestioned. On reaching the High School gate, I found it locked, and saw the yards through the bars silent and motionless. I withdrew alarmed, and went near the Tron Church to see the clock. It was only about two or three. Not a creature was on the street, not even watchmen, who were of much later introduction. I came home awed, as if I had seen a dead city, and the impression of that hour has never been effaced."

We find traces of the Sunday work imposed on teachers in Edinburgh in 1597, in the regulations of that year, which prescribe the teaching on Sundays of the Catechism in Latin, and of Buchanan's Psalms, but say nothing of the master's accompanying the boys to church. But in Aberdeen the masters continued to do so down at least till the year 1797. There is a letter of that year from Dr. Adam, Rector of Edinburgh High School, to Mr. Dun, his contemporary in Aberdeen, which shows the difference in practice then between the two schools. "The same reasons," he says, "which induce your patrons to devolve on parents the care of instructing their children in the principles of religion, should have led them to leave your scholars to the charge of their relations likewise on Sunday. It is hard that your attendance in a particular place should always be exacted on that day, and that you should not have it in your power to attend what church and hear what clergyman you think proper. Our masters have no charge of their pupils on Sunday. We do indeed usually prescribe to those boys that are sufficiently advanced a lesson to be learnt on Sunday and said on Monday morning, either in Castalio's Sacred Dialogues or in Buchanan's Psalms, and we also occasionally exercise them on the principles of religion, but we have no absolute regulations requiring it."

Traces of the custom of boys and masters going together to church are to be found in Elgin and Peebles at the end of last century. The master of the Grammar School of the former burgh, in 1798, was threatened with dismissal if he did not desist from preaching on Sundays, and was only continued in office on condition that in place of preaching he should "every Lord's day convene his scholars, instruct them in the principles of religion, and attend divine worship with them in the loft erected for their accommodation." The order to the schoolmaster of Peebles in 1799 was exactly to the same effect. But time and circumstances, which have modified the school hours on week-days and in-

creased those assigned to leisure or play, have long since abolished the enforced Sunday labor of the schoolmaster.

Salaries and Fees.

The two sources of income were the salaries paid by the Town-Council and the fees of the scholars. Endowments either did not exist at all, or were so scanty and inadequate where they did exist, that they can not be taken into account. The poverty of Scotch schools in this respect contrasts with the wealth of those in England. A single foundation,* such as that of Eton or Winchester, possesses larger revenues from endowments or bequests than all the Burgh schools and universities taken together.

The salaries paid by the public authorities varied with the position and ability of the burghs themselves. In no case were they excessive, but were calculated very much on the necessities of the schoolmaster, and regulated by the humble estimation in which his services were held. Prior to 1680 the master of the Edinburgh High Schools had an annual salary of 300 merks (100*l.*), and the four doctors had as much amongst them. About 1680 the head master's salary was increased to 500 merks, and his doctors had each £100 Scots; thirty years later, in 1709, the salaries fixed by the Town-Council were 300 merks for the rector and 250 to each of the under masters. In 1749 a petition was presented from the whole of the teachers to the Town-Council, praying for an increase of their stipends, and it was agreed that the rector should have 600 merks and each of the other masters £20 sterling. The rector's salary was increased in 1845 to £100, but no addition for a hundred years was made to the salaries of other masters. Subsequent changes have since been made, from time to time, tending on the whole to the better endowment both of rector and masters. In Aberdeen the salaries of the Grammar-schoolmasters have been exceptionally good. This was due, however, to the endowment of Dr. Dun, in 1631. Its annual value was 1,200 merks, divided among the rector and three classical masters, in certain proportions. The lands which yielded this income are now very valuable, and had they remained in the possession of the city the masterships would have been the best endowed of any school in Scotland. They were disposed of, however, in 1752, for an annual feu-duty of £169, which since that time has afforded the rector £82 and three other masters £27 a year, and the Town-Council, in addition, have, in the present century, at least supplemented these sums by salaries nearly equal in amount.

* Eton has an income from landed property of £20,569, besides thirty-seven livings in her exclusive gift worth £10,000 a year, with a probable accession of income from lands of £10,000 a year. Winchester has an income of £17,632, besides livings in her gift worth £3,888, and the lion's share in one of the wealthiest houses in Oxford, New College. The Universities of Edinburgh, Glasgow, Aberdeen, St. Andrews, for Arts, Law, Medicine, and Divinity, have in round numbers £25,000 a year; but of this sum, £10,000 is not an endowment, but an annual Parliamentary grant. The endowments of the Burgh schools (that is to say, of schools in burghs) under the partial or exclusive management of Town Councils, are, at the utmost, £3,000 a year, and Parliamentary grants of an uncertain kind add about £750 more.

In proportion to their means the smaller burghs were probably as liberal as Edinburgh and Aberdeen. In Haddington the schoolmaster's salary in 1678, was 400 merks, out of which, however, he had to pay his doctor, or assistant, 50 merks a year. The present rector has a free house and a salary of £45, out of which he pays an assistant £20. In Peebles, in 1628, the rector and doctor had between them 250 merks. At present, their representatives, the English master and the Grammar-schoolmaster, have together £68, of salary, and a house valued at £40. In Linlithgow, prior to 1652, the master's salary was 200 merks. It was increased in that year to 250, and subsequently to 400 merks, but the Town-Council, feeling this to be too heavy a burden on the public funds, requested the master, in 1707, to accept a smaller stipend, and on his declining to do so declared the school vacant and looked out for a cheaper master, at 250 merks. The present salary is £50, including an allowance for house-rent.

Some of the smallest and least liberal burghs give us a curious view of the estimate of the schoolmaster's office. In Burntisland, in 1596, the schoolmaster had no settled allowance in money, but for his support the Council nominated the "honestest men" of the town to lodge him in their houses by turns. It is due to the burgh to mention that forty years later he had a salary of 100 merks in lieu of this itinerant and casual mode of sustenance. In Dunfermline, the salary of the master, in 1610, was £100 Scots, from the endowment of Queen Anne, and this was supplemented by the Town-Council, but since 1885 they have withdrawn all payments to the school, except the original endowment of Queen Anne, which is not derived from the burgh funds. In Kirkcaldy, in 1582, a contract was made between the Town-Council and the minister, in accordance with which the latter was to take up and teach a grammar school, with himself as principal and a doctor under him. There is no mention made of salary, but he himself was to be paid by the scholars at the beginning of the year, while his doctor was "to have his meat about in the town, to wit, of every bairn a day's meat." A similar custom still prevails in some outlying districts of the Highlands, where a schoolmaster is engaged to teach the children at a very moderate fee, and is boarded by turns with the cotters whose boys and girls attend his classes.

The fees paid by the scholars varied just as the salaries did. A distinction was long made between the children of burghesses and of landward parents. The former paid a smaller sum than the latter, in consideration of the circumstance that it was the town alone that paid the master's salary, and consequently its youth were entitled to some advantage. There was a distinction also between citizens and men of rank, so long as the latter continued as a rule to send their sons to the Burgh school. In Aberdeen, for instance, the quarterly fee of each scholar was limited to thirteen shillings and fourpence Scots, unless he were the son of a marquis, earl, viscount, lord, or baron, from whom the masters were

entitled to take "such stipend for the instruction of their bairns as the noblemen or barons shall be pleased to bestow upon them."

In Edinburgh, in 1593, the first and second Regents had a quarterly fee of thirteen shillings and fivepence, the third had fifteen shillings, and the fourth twenty shillings, with a capitation fee from every boy in the school of forty pence, all Scots money. In 1598 a slight addition was made to the fees of the three under-masters, and their salaries were withdrawn "by reason of their honest allowance" from the scholars. In 1680 there was a uniform fee in all the classes of twenty shillings Scots for each burges's child. In 1709 the quarterly fee was fixed at 5s. sterling. A hundred years later (1805) it was raised from this sum to 10s. 6d.; and again in 1827, when the Candlemas offerings were abolished, to £1 a quarter; and recent additions that have been made to this charge arise from the fact that English under a separate master is now an imperative part of the course, and that provision has to be made for the English as well as the classical teacher.

In Glasgow, in 1750, the fees were 4s. a quarter, and were raised to 5s. in 1782; to 7s. 6d. a few years later; to 10s. 6d. in 1807; to 15s. when the Candlemas offerings were abolished, about 1826; and at present the rate is as follows:—For the first, second, third, and fourth years—Latin, 15s.; with Classical History and Geography, 20s.; Latin and Greek, 20s.; fifth year's class for Latin and Greek, 15s.

In Elgin, in 1654, the children of burghesses paid twelve shillings Scots, and "landward bairns the double of that," for all the branches taught in the English school, namely, reading, writing, arithmetic, and music; the fees in the Grammar School were probably not much higher, for in 1716, the master was authorized to charge a merk Scots "from each townsmen's child, and the double thereof from each country scholar, besides the other casualties used and wont."

In addition to their fees the masters were allowed a voluntary offering from the scholars, styled the *bleis silver*, generally a quarter's fee in amount. "It was a gratuity presented to teachers by their scholars at Candlemas, when the pupil that gave most was pronounced *king*. The designation appears to have originated from the Scottish word *bleis*, signifying any thing that makes a *blaze*, it being conjectured with great probability that the money was first contributed for this purpose at Candlemas, a season when fires and lights were annually kindled. Candlemas was a holiday; but the children in their best attire, and usually accompanied by their parents, repaired to the school, and after a short while spent in the delivery of appropriate orations, the proper business of the forenoon commenced. The roll of the school was solemnly called over, and each boy as his name was announced, went forward and presented an offering first to the rector, and next to his own master. When the gratuity was less than the quarterly fee no notice was taken of it, but when it amounted to that sum the rector exclaimed, *Visat*; to twice the ordinary fee, *Floreat bis*; for a higher sum, *Floreat ter*; for a

guinea and upwards, *Gloriat!* Each announcement was the precursor of an amount of cheering commensurate with the value of the "offering." When the business was over, the rector rose, and in an audible voice declared the *victor*, by mentioning the name of the highest donor. There was usually an eager competition for the honor of *king*. It has been averred in regard to a provincial school on one of these occasions, that a boy put down a guinea to insure the enviable distinction of being *king* for the day, when the father of a rival scholar gave his son a guinea to add to the first "offering," whereupon an alternate advance of a guinea each took place, till one had actually laid down twenty-four, and the other twenty-five guineas." Another contribution or offering of a smaller amount was called *the bent silver*. "In days of old, when many of our houses boasted no better floors than the bare earth, it was customary to lay down rushes or bent to keep the feet warm and dry, as well as to give a more comfortable appearance. At the close of the sixteenth century, and commencement of the seventeenth, during the summer season the pupils had leave to go and cut bent for the school. As in these excursions the bent collectors 'oftentimes fell a wrestling with hooks in their hands, and sometimes wronged themselves, other times their neighbors,' it was resolved that the boys should have their accustomed holiday, and that every scholar should present the customary gratuity (fourpence), to the master on the first Monday of May, and on the first Mondays of June and July, which are commonly called the bent silver play, with which money the master was to buy bent or other things needful for the school."

With their emoluments from all sources, salaries, fees, voluntary offerings, and from offices that they sometimes held along with that of schoolmaster, such as that of session clerk and precentor in the church, the teachers in our burgh schools were never paid at an extravagant rate. At the close of last century, Dr. Adam, in a letter to the rector of the Grammar School of Aberdeen, expressed what was probably the general feeling of the schoolmasters both in Edinburgh and elsewhere as to the inadequacy of their salaries and incomes. "I suppose there is as little cause with you as with us," he says, "for magistrates to restrict masters from receiving additional emoluments from their scholars. I hope your magistrates have been more liberal than ours in giving you adequate salaries, that they thus inhibit you from receiving any other thing. Were this to take place among us we should be deprived of a considerable part of our income. The poor encouragement, and the contumelious treatment those of our profession generally meet with, is neither for the honor nor advantage of the country. While the emoluments of every other rank of men in the public service have been augmented, those of schoolmasters in Scotland, for the most part, remain the same. Neither the salaries nor the fees in our schools have been increased for nearly a hundred years. Our employers, indeed, in general have raised the quarter payment, but nowise in proportion to what the teachers of other

branches of knowledge receive. But we in towns are tolerably well in comparison with our poor brethren in the country."

Masters and Assistants.

In Grammar schools, properly so called, there has usually been a rector or head master, with one or more doctors under him. The name of doctor has long since disappeared, but the office still exists under other titles,—master, assistant, etc. The rector or head master had considerable authority over the others in early times. In Aberdeen Grammar School, for example, when it received the constitution that it still substantially retains, in 1681, it was laid down as a rule that the rector should "teach the high class of the school, and have the inspection and oversight of the rest of the masters." And in Edinburgh, in like manner, the regulations of the Council at successive times show that the rector was intrusted with definite power, and occupied a different position from the rectors of the present day. In 1598 he was appointed, with a general oversight over all the doctors or regents. In 1680 it was especially enacted by the patrons, that while not entitled to put in any doctors except those presented by the Council, he should have power, upon misdemeanor, to deprive any of them of their office; with the provision, however, that he should not exercise his authority without first informing the Council and giving his reasons for deposing the master. In 1710 the rector was empowered to interfere only in grave cases of discipline; to exercise a general oversight, and to admonish a master privately if he neglected his duty or performed it superficially. For continued neglect he was to admonish him publicly before his colleagues; and if he paid no regard to this second remonstrance, the rector was without delay to represent the matter both to the Magistrates and the Town-Council.

One very invidious duty, both in Edinburgh and Aberdeen, the rector and masters had to discharge in reference to each other. At the annual visitation of the school, when the proper business was finished, the head master withdrew, and the others were requested to state any thing they knew against him; and in like manner the doctors were likewise removed, and "trial was taken what the master or any other had to say against them or any one of them." This custom we find in use in Edinburgh in the year 1709, when, the school having fallen into a bad condition, the Council "called the master and doctors before them, to take trial of the cause thereof. Having removed the doctors, and interrogated the master, whether or not the decay of the school did proceed from the negligence or insufficiency of the doctors, he answered, that so far as he knew the doctors did duly attend in the discharge of their duty; but alleged that the decay did proceed from the great number of private schools in the town. And being interrogated as to his method of teaching and books that he taught, he gave a full account of them; and it being alleged that the decay of the school was his want of authority in discipline, he replied that it was always his practice to keep a middle way, avoiding too

much severity or too much lenity. Thereafter the doctors were called in, and the master removed; and they being also interrogated whence the decay of the school did proceed, they alleged that it did proceed from the number of private schools." In Aberdeen the traces of this inquisitorial spirit continued down at least till the end of the last century (how much longer we can not say), and that in its most humiliating form, in the presence, namely, of the boys. In reference to this, Dr. Adam writes to his friend, the rector of Aberdeen:—"As to the stated meetings for public discipline, I very much disapprove of them. What is said might do very well for private advice; but there seems no necessity for publishing it to the boys; and I can not see the propriety of solemnly interrogating you in their presence how far these regulations have been strictly observed or not during the preceding year. Whatever tends to diminish the authority of a teacher in the eyes of his scholars, as this proposal seems to do, is surely hurtful."

In a second class of burghs, where the authorities supported a Grammar school for Latin and Greek and an English school for elementary branches, as in Elgin and elsewhere, the masters were independent of each other, as long, at least, as they continued apart; and when they were brought together, as many of these separate schools were at the beginning of the present century, under the name of Academies, although the title of rector is frequently found associated with one or other of the masters, it neither implied nor conferred any authority.

In a third class of burghs, where there was but one school from time immemorial for all the branches of education, there was usually a head master, who taught Latin, and a doctor or assistant under him, who taught such subjects as he was directed to teach by his superior. But even in such cases, the doctor not unfrequently contrived to emancipate himself, in course of time, into an independent master; and all throughout Scotland, in every class of burgh that we have indicated in the above three-fold division, the growing tendency has been for the separate departments of each school to acquire absolute independence; so that each school is practically a small republic, in which there are as many heads as there are masters.

In very early times, it seems to have been clearly understood by the Town-Council that the office was for life; and one of the great difficulties that the Town-Council of Edinburgh in 1580 had in getting rid of an obnoxious schoolmaster, was the fact, as stated in their own records, that he "was provided to his office during his lifetime." During the seventeenth and eighteenth centuries, the patrons frequently made special agreements with their masters; and there are probably few burghs in Scotland in which, if their records were searched, it would not be found that the tenure of office of the schoolmaster, at one time or other, was stipulated to be for a shorter period than life. Sometimes it was terminable at the end of three years, as in Elgin; sometimes at the end of ten, as in Dunfermline; sometimes at the pleasure of the Council, as in

Edinburgh, in an enactment passed in 1719. But occasions arose every now and then when the schoolmasters kicked against these temporary appointments, and refused to acknowledge their legality; and the judgments of the Court, from time to time, have all tended to show that the Town-Councils have acted *ultra vires* in electing the schoolmasters for a limited period, and that they hold their office, and have always held it, for life.

Scholars.

There can be no doubt that in the sixteenth and seventeenth centuries the Grammar schools, not in the chief burghs only, but in places of less importance, were resorted to by the children of the nobility and higher gentry, as well as by the middle and better sort of the lower class. Even till the end of the eighteenth century they were still the schools where the children of the gentry, as a rule, received a part of their classical education. At present they are almost exclusively supplied from the middle ranks, including in that general description, tradesmen and shopkeepers at the one end, and professional men and the less wealthy landed proprietors at the other, but having few or no representatives of the lowest or highest classes on their benches.

The main cause that has led to the withdrawal of the lowest classes from them is the rate of fees, which, though moderate enough, are beyond the means of the poor in all our best Burgh schools, and are adapted for them only in the case of those burghs where the school is, in fact, as it is sometimes also in name, the Parochial school. The causes that have led to the withdrawal of the highest classes are more complicated, but are neither far to seek nor unnatural. Indeed, before the present century, they may all be comprehended under one chief cause, the root and source, directly or indirectly, of all the rest—the union, namely, of the two kingdoms—imperfectly at first under James VI, and interrupted during the whole of the seventeenth century by civil strife, but cemented in 1709, and every day since that tending more and more towards culmination. Naturally and irresistibly the attractions of the greater kingdom have drawn towards it the chief notability and gentry. Their avocations as members of one or other of the Houses of Parliament have necessarily taken not a few of them thither. In a memorial which he submitted to his patrons in 1718, the rector of the High School of Edinburgh petitions for an increase of salary on this very score. "There were then," he says, "scarce any of the nobility and very few of the gentlemen of the county residing in Edinburgh, and the youth who attended his institution were almost altogether the children of burghers."

The same of the great English schools themselves, their less mixed character, their being the natural entrance to Oxford and Cambridge, and the places where the sons of the nobles and gentry would find their future companions and equal associates, and, above all, the adherence in the main of the highest ranks to a different form of religious faith from

that professed by the mass of Scotland, all account for the gradual disappearance of the very highest classes from the public Burgh schools.

Their example, again, has naturally acted on a class somewhat below them, and the tendency has increasingly been with that class also to give its sons an education in England. Facilities of travel have widened the field of choice for parents at home, and extended the area from which schools in larger provincial towns derive their scholars, so that the smaller burghs must content themselves with their local supply for support.

System of Promotion.

As a general rule, the scholars in the grammar and burgh schools have been promoted by seniority and not by examination from year to year, and this usage has become so inveterate and universal, that it is generally imagined to have been inherent in the Scottish system from the first; but in the best of the schools it was not always so. In Edinburgh, in the directory of 1598, it was enacted that boys intended for any class in the school must first be presented to the principal master, in order that he might enroll their names in his book, and by trial of their ability fix the class for which he found them fit. No regent was permitted to put forward or keep back any pupil without the consent of his superior, but all boys who were found by the principal unable to "hold with their marrows" or equals, were to be put back by him at the quarterly examination; and in the revised directory of 1710 it was ordained that "at the ascension of the classes, particular care be taken that such only be allowed to advance as understood tolerably well at least those things that have been taught the preceding year." Even to the present day an excellent rule on the subject exists in Aberdeen. "On a certain day of November in each year, the school will be opened after the competition holidays for the entrance examination for the various classes, the subjects of examination being the work of the previous three months in each class. Pupils intending to join the first class will have to pass an entrance examination, which will consist in writing to dictation a few simple English sentences, and showing a sufficient knowledge of the elements of English grammar. Pupils from other schools will be examined separately by the masters of the classes which they propose to join on whatever books they have been previously reading." But this excellent rule is never acted upon, and Aberdeen, in common with other Scottish schools, goes upon the principle of rejecting none, and promoting all alike by seniority.

Turbulence of Scholars.

In the early history of the schools, the turbulence of the scholars is a most noticeable feature. It seems to have shown itself in its most aggravated forms in Edinburgh and Aberdeen; but even in the smaller burghs the spirit of rebellion and insubordination prevailed in a form quite unknown to modern times. In the Presbytery's report of the Elgin school in 1640 the progress of the scholars was said to be not

altogether what could have been wished, and the reason assigned was the troublesome times, and the untowardness and insolence of youth taking occasion thereupon. In Banff, in 1698, severe measures were passed by the Council for the punishment of certain scholars who were encouraged by their parents in rebellion against their masters. In Dunbar, in 1679, the turbulent spirit seems to have assumed the form of public damage to the glass windows of the church and school, of breaking desks and locks. Fugitives, with those that maliciously rebelled against their masters, were to be punished with severity; and where the stubborn parties were too strong "the aid of the magistrates was to be invoked."

In Aberdeen, in 1580,* it was found requisite to pass an Act of "Council ordering the scholars on their entry to find caution under the penalty of £10 for their good behaviour, and for paying due obedience both to the magistrates and their masters." "In 1612, the pupils, repining at the severity of the rector's discipline, became mutinous, and determined to resent it at their own hands. Having armed themselves with hackbuts, pistols, and other offensive weapons, they took possession of the Sang School, and were threatening to commit acts of outrage, when the magistrates were obliged to interpose their authority to prevent it. The ringleaders of the juvenile insurrection were apprehended and sent to prison, and twenty-one of the most prominent insurgents were expelled, not only from the Grammar School but from all the other schools of the town."

Edinburgh took the precedence in the general spirit of tumult and rebellion. About the end of the sixteenth century there is frequent mention of periodical disturbances or "barrings out" carried on by the pupils of the High School. In 1580, the scholars were so turbulent that nine of them were committed to prison and fined for their misconduct. In 1587 there was a formidable barring out, which was not quelled until the civic authorities were assembled, and an entrance obtained by shattering the principal door to pieces. When they entered, they found that, besides provisions for several days, the scholars had in their possession fire-arms of every description, swords and halberts, and other weapons, which fortunately were not used on this occasion. On the 15th of September, 1595, the most serious affair of this nature occurred. According to established custom the scholars sought a week's holiday from the magistrates. Their request was refused, and the boys, most of them "gentilmenis bairns," entered into a contract to revenge themselves upon the magistrates. They provided themselves with fire-arms and swords, and in the dead of night took possession of the school-house, and strongly barricaded and guarded every entrance into it. The rector having failed to effect an entrance, called in to his aid the municipal power. John Macmoran, one of the magistrates, immediately came to the High School with the city officers to force an entrance. Upon their

* Kennedy's *Annals of Aberdeen*.

appearance in the yards the boys became outrageous, and appeared determined to oppose them to the utmost. William Sinclair, son of the Chancellor of Caithness, one of the ringleaders, was seen to take his stand at a window overlooking one of the entrances, and commanding all that was going on without. Macmoran, not anticipating any danger, was urging his officers to force the door with a long beam used as a battering-ram. Sinclair remained at his window, threatening to shoot Macmoran if he did not desist. He persisted, and had nearly burst open the door, when a shot in the forehead from Sinclair's pistol killed him on the spot. Immediately on this there was a rush of citizens to the school. They burst into the place and carried the rebels off in a body to the Tolbooth. A formal deputation from the Town-Council carried the news to the King. Seven of the boys were kept in prison for two months, at the end of which time they presented a memorial to the Privy Council complaining of the treatment to which they were subjected, declaring their innocence, and demanding, as the sons of barons or landed proprietors, to be tried, not before the magistrates of Edinburgh, but before a tribunal the majority of whom should be peers of the realm. The particulars of the trial have been lost, but the prisoners were soon after liberated without further punishment.

It is hard to say whether this mutinous spirit was the cause or the result of the severe discipline attributed to the early schoolmasters. But another explanation of it, in the cases above mentioned, is to be sought in the large admixture of the sons of the nobility and gentry in the schools. Apart altogether from the natural "untowardness and insolence" of youth, they would, of course, regard their teachers as inferiors, and this want of respect would be increased by the subordinate position in which the masters were held by the authorities. It is a significant fact, at all events, that we hear little of rebellion and mutiny of the scholars after the Union in 1709, when the sons of the nobility began to be educated in England; and no mention of them since the beginning of the present century, when the Burgh schools, even in the chief towns, had become very much the seminaries of the middle classes, and the gentry had followed the example of the nobles.

*Subjects of Instruction.**

The subjects taught in the Grammar schools were much the same before as after the Reformation. Their classical character may be

* In connection with this subject, we may mention that Greek was first taught in Cambridge by Erasmus in 1510, and that it was only after an obstinate struggle that it was introduced into Oxford about the same time, and a Greek professorship there was first endowed by Wolsey in 1519. A party of students opposed to its introduction, under the name of Trejana, tried to put the first lecturer down by clamor and violence, but fortunately the king interfered in favor of the Grecian side. In the English public school we find traces of it as early as 1518. By the statutes of St. Paul's school in that year, the master is to be "learned in good and cleane Latin literature, and also in Greek, if such is to be gotten," and a wish is also expressed, that the scholars should be taught always in good literature, both Latin and Greek." This is by no means conclusive evidence that it was taught quite so early, but as the masters in the English schools about 1530 included among them Lily (of St. Paul's), and Nowell (of Westminster), men of

gathered from the description given of Legie-Montrose, about 1570, by James Melville, nephew of Andrew Melville. "We learned there," he says, "the rudiments of the Latin Grammar, with the vocables in Latin and French, also diverse speeches in French, with the reading and right pronunciation of the tongue. We proceeded further to the etymology of Lilius and his syntax, as also a little of the syntax of Linacer; therewith was joined Hunter's Nomenclature, the Minora Colloquia of Erasmus, and some of the Eclogues of Virgil and Epistles of Horace; also Cicero, his Epistles ad Terentiam. There, also," he adds, "we had the air good and the fields reasonably fair, and by our master were taught to handle the bow for archery, the club for golf, the batons for fencing, also to run, to leap, to swim, to wrestle, to prove pratteiks, every one having his match and antagonist both in lessons and play." Of Montrose itself, he says, "The master of the school was a learned, honest, kind man. He was very skillful and diligent. The first year he caused us to go through the Rudiments again, thereafter enter and pass through the first part of the Grammar of Sebastian; therewith we heard Phormione Terentii, and were exercised in composition. After that we entered to the second part, and heard thereat the Georgics of Virgil, and diverse other things."

Greek was introduced into some of the schools about the same time as that to which the above extracts from Melville's Diary refer. The town in which it was first taught was Montrose, in the year 1534. The honor of introducing it is due to John Erskine of Dun, who on his return home from traveling on the Continent of Europe, brought with him a Frenchman skilled in the Greek language. Through this means, it came to pass, that Andrew Melville acquired it in 1557 from a teacher named Marsilliers, and established its study afterwards in the two universities of which he was Principal in succession,—Glasgow, namely, in 1575, and St. Andrews, in 1580. Indeed, he may be said to have introduced its study into both of them, for in Glasgow it was unknown before his time, and of St. Andrews, in the year 1575, his nephew says, "Our regent (or tutor) began and taught us the A B C of the Greek, and the simple declensions, but went no further."

Of Scotch Grammar Schools, Perth seems to have been the first in which the Greek language was taught. In the year 1558, Mr. John Row, one of the early reformers, was settled as minister in Perth. He was a Greek and Hebrew scholar, and taught these languages to his boarders who attended the Grammar School. He gave lessons also in Greek to Simson, the rector of the school, "by which means," says

learning, the boys under their charge at least were probably taught the elements of the language. In the statutes of the new Cathedrals established by Henry VIII. in 1541, it was provided that there should be a grammar school for each, with a head master learned in Latin and Greek; and the conclusion to which Hallam comes on the subject is, that before the middle of Queen Elizabeth's reign, or the year 1580, the rudiments of the Greek language were imparted to boys at Westminster, Eton, Winchester, St. Paul's, and in some also of the less important schools.

M'Crie, "it came afterwards to be taught in Perth." It gradually extended to other schools, and in the first quarter of the next century, we have notices of its existence in various places. It was taught in Prestounpans in 1606, and in Edinburgh, in the year 1614, a class was established in the High School for the rudiments of the language. In the election of a head-master a few years later, there was a comparative trial of two candidates in Latin and Greek. In many of the smaller burghs, however, Greek, if it was ever introduced at all, took but a slight hold, and even in the larger ones, it enjoyed but a precarious existence. In Edinburgh, for example, it seems to have ceased to be a branch of study very shortly after its introduction, and did not take its place again till Adam was rector. For, in 1772, a few years after his appointment, there was a remonstrance from the Principal and Professors of the University, in which the following remarkable passage occurs:—

"We beg to lay before our honorable patrons some particulars which affect the prosperity of the University so nearly, and are of such importance to the plan of education in this city, as to call for their immediate attention and interposition.

About the beginning of October, the rector of the High School opened a class for teaching the elements of the Greek language, which a considerable number of his scholars attend. In this, as well as all other Universities of Scotland, the Greek class is elementary. The professor begins to teach his student the first principles of that language, and instructs them in the grammar until they are capable of reading the authors in that language.

By this innovation of the rector's, it is evident that an encroachment is made on the province of the University, and he deprives the professor of Greek of students, who, according to the accustomed course of education, should have attended his class. We have inspected two sets of regulations concerning the course of education in the High School, framed by the Professors of the University at the desire of the Magistrates, and confirmed by Acts of Council, the one in A. D. 1644, the other A. D. 1710; and by both of these the High School is considered only as a Latin school, nor have any of the present rector's predecessors thought themselves entitled to teach Greek.

As the Magistrates and Town-Council are patrons both of the University and High School, we trust, in their attention to the welfare of both these seminaries of learning, that they will prevent any interference between them, and will not permit such an encroachment upon the University by a master under their authority, but limit him to his proper function of teaching the Latin language, as sufficient to employ his whole time and attention."

In Dundee, it was certainly not taught at the beginning of the present century. In Glasgow, a rector's class was formed in the year 1815, in which, besides Latin, the elements of Greek were also to be taught. In Elgin, whose school records have been more thoroughly searched than those of any other town in Scotland, a master, able to teach Greek as well as Latin, is first mentioned in 1723, but the first notice that we have of the classes being examined in Greek is in 1795, when Homer is especially mentioned as the author whom they had been reading.

An attempt was also made to introduce Hebrew into the Grammar schools. It proves the zeal of the early reformers for learning, but the failure to establish it as a usual branch of study is not a matter to be regretted. It was first taught by Mr. Row, in the city of Perth, to the boys who boarded with him, in the year 1558. In 1606, the school of

Prestonpans was built and endowed by the Rev. Mr. Davidson as a trilingual seminary for Latin, Greek, and Hebrew; and in 1644, Hebrew was added to the course of study of Perth Grammar school. At the present time it is taught in no Grammar school in Scotland.

In regard to English and the elementary branches there was a distinction in practice between the smaller burghs and those of greater consequence. In the former the Grammar school usually taught all the branches of education, and did very much the same work in towns as the Parochial schools in the rural districts. In them, English, writing, and arithmetic very early came to be recognized as departments in the school. In almost every case, however, the duty of the rector was confined to classics, and his subordinate master, the doctor, taught the inferior branches. Sometimes also it was permitted to females to teach boys under ten years of age, and girls to a more advanced period, although, long before the beginning of the present century, as a rule, in the smaller burghs, both boys and girls were educated in the same school in all the subjects usually taught. In this respect they present a contrast to the larger and more important towns,—Edinburgh, Aberdeen, Glasgow,—where only boys are admitted, and no provision is made for girls in the education afforded and paid for out of the general funds.

In the larger burghs, English was not a branch of the Grammar school, properly so called. In Edinburgh, for example, Latin was the only subject taught until the year 1593, when a master for writing (and probably arithmetic) was appointed. It was not imperative on the boys to attend his class, and as late as 1704 the Town-Council requested the rector and his colleagues to use their influence in his favor, from which it may be inferred that he had received little encouragement in his vocation. Geography was introduced in 1715, and was taught only in the rector's class. In 1827, when the school was re-organized, the classical masters were instructed to teach English literature, history, and geography. A French master was also appointed at the same time; arithmetic was taken from the writing-master, and, together with mathematics, formed into a new department. German was first taught in the school in 1845, and it was only in 1866 that English was taught as a separate branch by special masters.

In Glasgow, the Grammar school continued to be exclusively a classical seminary till 1816, when a teacher of writing and arithmetic was appointed. In 1834, mathematics, English, and French, were added to the course.

In Aberdeen, it would appear, from the directory of 1553, that arithmetic was a part of the course from a very early period, but it is only within a year or two that English began to be recognized as a special department. It had been taught for some time by the classical masters as a part of their regular course. In two of these schools, Edinburgh and Aberdeen, it is only the higher English that is taught,—grammar, composition, and literature; but in Glasgow (so rapid has the change been from its first introduction) there are elementary classes for

beginners in English, just as in the smaller burghs and the Parochial schools, for children, that is to say, of six or seven years of age.

In Montrose up till the beginning of the present century, the Grammar school was exclusively devoted to classics. In Stirling, Latin and Greek alone were taught in the Grammar School as lately as 1858. In Dumfries, the English School, as distinguished from the Grammar School, was suppressed in 1724, and its master received notice that his services and salary would be discontinued, as the Town-Council had resolved "that the Latin and English languages should be taught in the High School of the burgh in future by the classical masters." Even in Banff, little more than a hundred years ago, in 1762, the only public school of the burgh confined its teaching exclusively to Latin, and the inhabitants in consequence were at that time compelled to send their children to rural schools for instruction in English, writing, and arithmetic. In all of these, English, from the very beginning, is now a recognized part of the course.

The want of English and such other elementary branches as were not taught in the Grammar School was supplied in various ways, chiefly by the Lecture schools already noticed, by Sang schools, and by Private schools, tolerated or licensed by the authorities. This was the case in Edinburgh, where, in the year 1619, we find it ordained by the Provost and Bailies that no persons within the burgh should put their children to any other than the Grammar School, except only for learning "Grace-book and Primer." In 1724 the number of teachers tried and licensed is limited to five, and in 1792, Leechman, who taught Sir Walter Scott English, was one of the four English masters licensed and appointed by the magistrates.

Sang Schools for Music and English.

I. In connection with the growth of English schools for the ordinary branches, alongside of the Grammar schools, or forming a department of the Burgh school, the Sang school deserves especial notice. As the name implies, the Sang schools were originally for teaching music. They existed in some cases before the Reformation, for in Ayr we find notice of a music-master as early as 1586, but they mainly owe their origin to an enactment passed in 1579, which is in the following terms:—"For instruction of the youth in the art of music and singing, which is almost decayed, and will shortly decay, unless timeous remedy be provided, our sovereign Lord, with advice of the three Estates of his present Parliament, requests the Provosts, Bailies, Council, and community, of the most special burghs of this realm, and the patrons and provosts of colleges where Sang schools are founded, to erect and set up a Sang school, with a master sufficient and able for instruction of the youth in the said science of music, as they shall answer to his Highness upon the peril of their foundations." This act appears to have been very generally obeyed; and in the second volume of the Miscellany of the Maitland Club, in "the extracts from the accounts of common good of the vari-

ous burghs in Scotland," relative to the payments for schools and schoolmasters, between the years 1557 and 1684, there are many entries of salaries paid to teachers of music. These payments vary from £266 Scots, at the highest, for "fee and house mail," to £6, 18s. 4d. Scots, at the lowest.

The number of these schools can not be accurately ascertained, but in the special reports on the Burgh schools there are no fewer than fourteen which at one time had Music schools attached to them. For their support, not unfrequently endowments were made from the Church lands. Thus, in Elgin, whose Sang School was founded in 1594, a portion of the property of the Hospital or Maisondieu was mortified by royal grants to the Magistrates and Town-Council for this purpose. In Dunfermline, in 1610, Queen Anne, wife of James VI., mortified in the hands of the Town Council, £2,000 Scots for the support of a schoolmaster of the burgh and a teacher of music, and the Town-Council bound themselves, and their successors, to pay each of them £100 Scots, or £8, 6s. 8d., annually, as the interest of this sum. Besides teaching music, the master of the Sang School acted from the first as precentor or "taker up of the psalms" in the parish church. And in some cases we can trace him still, as in Dunfermline, acting in this capacity when all connection with the school has actually ceased. But from an early period he seems also to have taught English and the elementary branches of education alongside of the Grammar School. It has been already mentioned that in burghs where Lecture schools did not exist, the reader in the Church instructed the children in the Gracebook, Catechism, and Bible; and as early as 1628 and 1688 we find the music-master specially designated also the "reader" in the towns of Tain and Dumfries.

The case of Elgin illustrates the conversion of the Music school first into an English school, where music also was taught, and in which ultimately English, with the branches of writing and arithmetic, became the main subjects, and music was quite a subsidiary and subordinate study, thrown in as an extra branch, without any additional fee. The first change was about 1659, the school having apparently existed up till that time for the teaching of music alone. From that date till the beginning of the present century the school is sometimes styled the English and Music School, and sometimes the English School only. The terms of the teachers' appointment, in 1769, are interesting, as showing the duties that then devolved upon the master of a Sang School, and on other grounds also. They are as follows:—"The person elected becomes bound to be master and teacher of the Music and English School of Elgin, and that for the space of three full and complete years, during which space he binds and obliges himself to give all due attendance to the said school, and to teach and instruct the young people of both sexes which shall come thereto, in English, writing, arithmetic, vocal and instrumental music, and all other sciences he knows, which the students incline to be

taught; that he shall also present in the church both on Lord's days and week-days, except in the case of sickness or necessary absence, in which case he shall be obliged to provide one sufficiently qualified to supply his place on his own expense."

It would appear in this particular case that one subject after another was added to the province of the English School, and in like manner to the Grammar School, till they actually became rival seminaries under one management, in which all the ordinary branches were taught, for, in 1795, we find the Presbytery examining the scholars of the Grammar School in the principles of religion, including the shorter Catechism, in Latin, English, writing, arithmetic, book-keeping, and geography, and in the same year, in the visitation of what is expressly called the English School we find the following entry:—"The Presbytery proceeded to take trials of the proficiency of the different classes, from their reading Homer and Horace, and the other classics, with the classes reading English, and those learning arithmetic, book-keeping, and algebra, and having particularly examined these several classes separately, and taken trial of their knowledge of our holy Christian religion in the Shorter Catechism, and in church music," they expressed their thorough approval of the master's care and diligence. Music, it will be observed, is mentioned, and both here and elsewhere, we find that, although subordinate, it was taught till a recent period. The English master also, in Elgin, continued till the time of the disruption or secession of the Free Church to act as precentor, or was at least bound to provide and pay a substitute in his room.

A similar process of conversion of the music into English and minor schools seems to have taken place all throughout Scotland. In most instances it was so gradual that the time when the English school took the place of the Music school, and the master of the Sang became merged in that of the teacher of English, or was converted simply into the precentor, or altogether disappeared, can not be stated with certainty.

In some such way as we have indicated, by Lecture Schools, by Sang schools, by licensed Private schools, and in the smaller burghs by a division of duty between the rector and his doctor, all the burghs of Scotland were provided with schools in which the ordinary branches were taught, and at the present day almost all Public schools in burghs have lost their distinctive character as Grammar schools for classics alone, and are now become general schools for all branches of education.

The confusion of schools and departments seems to have reached its worst about the beginning of the present century. This, speaking somewhat loosely, was the period when Grammar schools, English schools, and Commercial schools, so called, all existing in the same burgh, with ill defined limits, were brought together under one management, and converted into academies, with special branches assigned to each department. Even yet, however, there is much need of reformation in regard to this point, and an overhauling and readjustment of the subjects to be taught by each master is imperatively called for.

II. PRESENT CONDITION.

The Secondary schools of Scotland include the Burgh schools, Academies, and other institutions of a public character, with a complete and preparatory element in each. The Education Commissioners in their Third Report, submitted to Parliament in 1868, present the following summary view of the number, organization, and general condition of these schools, founded on the Report of two Assistant Commissioners, who made a personal inspection of the same, and of Mr. Fearon, an English Inspector, who examined some of the most prominent.

Kinds—Number—Constitution.

These schools, while they include elementary classes, and in some instances begin with the rudimentary instruction, continue the education of children of the middle classes to the close of the sixteenth year, and until the pupils go to the University or into business. They are divided into three classes.

First, There are *Burgh schools* the leading characteristic of which is, that they are subjected to the regulation and control of the authorities of the Burghs as such,* and are open to the community. As examples of the Burgh school proper, we may refer to the High schools of Glasgow and Edinburgh. It should be observed, however, that in some cases where the population is small, the Parochial school discharges the functions of a Burgh school also, and is then termed a *Burgh and Parochial School*.

Secondly, There are *Academies*, or *institutions*, both in Burghs and out of Burghs. Generally these establishments have been founded by subscription, as supplementary to the Burgh schools, and are managed by directors selected from the subscribers. Of these the Edinburgh Academy may be taken as a specimen. In some cases, however, these Academies or Institutions have been either partially or wholly amalgamated with the Burgh school. In case of partial amalgamation, as at Ayr, the effect is to add a *proprietary* element to the ancient Burgh foundation. In case of complete amalgamation, as in the instance of the Madras College, St. Andrews, the ancient Public school is merged in the new Institution, the Town Council having transferred the schoolhouse and garden to the newly appointed trustees.

But besides Public, there are (*thirdly*) *Private Secondary schools* which are of various kinds. Some of these are exclusively Boarding schools, such as Merchiston; some are exclusively Day-schools, such as the Edinburgh Institution, or a mixture of both, as in the case of the Gymnasium at Aberdeen. But their characteristic is that they are private property, maintained and conducted as private speculations.

* There are fourteen districts of *Parliamentary Burghs* in Scotland, containing 69 Burgh towns, besides the large Parliamentary Burghs of Aberdeen, Dundee, Edinburgh, Glasgow, Greenock, Paisley and Perth, which are not included in any district of Burghs, and three *Royal Burghs*, Peebles, Rothesay and Selkirk, which till 1832 had a Parliamentary representation. This makes 79 Burghs, Parliamentary and Royal.

With respect to the Public Secondary Schools, it appears that they number eighty-seven. And they are so distributed that every Burgh in Scotland, with the exception of Kinghorn, Oban, and Portobello, has one or more of such schools supplying education to the Middle classes of the country. The subjects of instruction will be found in detail in the Reports, but it may be stated generally, that in some cases they are elementary, in others definitely beyond that standard, and in other cases a mixture of both. Of these eighty-seven Public schools, however, it is to be observed that thirty-three are Burgh schools proper, twenty-three are Academies, and the rest are Burgh and Parochial, or simply Parochial, which fill the place of Burgh schools.

With respect to the number of scholars which the Assistant Commissioners found on the roll of such Secondary schools, it appears that, deducting from these eighty-seven schools the twenty-eight from which no Returns were received, there were in the others 14,879 scholars. If to this sum be added the number of scholars found in the eleven Private schools which were taken as specimens, we find that Returns were obtained from seventy schools containing 15,946 scholars on the roll; and, we may add, that of these nearly 90 per cent. were in attendance.

It must be observed, however, that these 15,946 do not represent the whole number of scholars of the Middle class in Scotland. Besides those attending schools of this class, from which we have no returns, many boys and girls of the same class are at school in England and abroad; numbers of girls are at schools which exclude scholars of the other sex, and such institutions are not included in these returns; while many children of both sexes are at Private schools, only eleven of which are included in these figures. The proportion, therefore, which these 15,946 children bear to the whole middle-class population in Scotland must remain a matter of conjecture; but according to the estimate of the Assistant-Commissioners the schools from which they got complete returns "supply instructions to more than two-thirds of the middle-class population in this country."

Assuming this to be approximately correct, it would appear that there is one in every 140 of the population of Scotland on the roll of some Burgh School, Academy, or other Secondary school, if Private schools are included. But there is one in every 205 of the population in Public Secondary schools. Of these Public scholars it may be observed that 56 per cent. are under twelve, and only six per cent. above sixteen years of age. This seems a very insignificant number compared with the 322,728 children between ten and fifteen years of age. But in order to ascertain the disposition of the people of Scotland in this respect as compared with other countries, it may be interesting to observe that in France there are 65,832 scholars at the *lycées* and *communal colleges*, which supply education to the upper and middle classes; and this is in the proportion of 1 scholar to about 570 of the population. In Prussia, according to the latest account, there are 74,162 in the Public higher and preparatory

schools, which is in the proportion of 1 scholar to 249 of the population ; and in Prussia it is calculated a boy should enter these schools when he is nine or ten, and leave for the University when he is eighteen or nineteen. In England it has been stated upon good authority that in all the schools which by any straining or indulgence can possibly be made to bear the title of Public schools, there are only 15,880 scholars, which is in the proportion of 1 scholar to about 1,800. The superiority of Scotland in this respect seems to have struck Mr. Fearon an Inspector of English schools, fresh from visiting the Grammar schools of the South of England. For he says (p. 60):—" Let the Commissioners remark the numbers of children attending these Burgh schools, and note their significance. The mere fact, for example, that 890 children are attending as day-scholars at the Burgh school of Ayr, a town with less than the population of Reading or Canterbury, is in itself, irrespectively of the quality of the education afforded in that Burgh school, a most healthy symptom. Where in England could we produce such an instance of interest and confidence in a public school among the middle classes of our rural population?"

Passing, for a moment, from the Burgh schools to the Universities, if we compare the number of students in the Scottish Universities with the number in the German Universities, we find that in Scotland there is at least one matriculated student for every one thousand of the population. But in the whole of Germany (exclusive of the non-German States of Austria) there is one matriculated student for every two thousand six hundred of the population ; while in England the proportion is about one matriculated student to every five thousand eight hundred of the population.

From these facts it does not seem extravagant to conclude, that the people of Scotland are not less disposed than the people of Prussia or of France, and more disposed than the people of England, to avail themselves of any educational opportunities which may be placed within their reach.

We have already stated that there is scarcely any town in Scotland in which there is not a Burgh school, or Academy, or, at all events, a Parochial school, which, to some extent, supplies its place ; and it also appears from the facts collected by the Assistant Commissioners that " throughout our Burgh schools there is ample room for all who attend, with a margin for a considerable increase of numbers." Thus, in schools containing 13,662 on the roll, accommodation is provided for 28,099.

If a boy has access to a Burgh school or Academy, there is no difficulty in his obtaining such instruction as will enable him to join the junior classes of Latin, Greek, and Mathematics in any of the four Universities. But there are parishes and districts in Scotland where there is no Secondary school within reach, and where, unless the Parochial school-master is qualified to teach these branches, a boy who aspires to reach the University can not obtain the necessary instruction. It has, indeed,

been asserted that the Burgh schools and Academies are almost the exclusive feeders of the University. But the facts ascertained by the Assistant Commissioners disprove this assertion; for they show that while 42 per cent. of students come from the Burgh and Middle-class schools, the rest come from the Parochial and other Elementary schools or from abroad.

In dealing with the question of Scottish education, this fact is of vital importance. It can not be too often repeated, that the theory of this School system, as originally conceived,* was to supply every member of the community with the means of obtaining for his children not only the elements of education, but such instruction as would fit him to pass to the Burgh school, and thence to the University, or directly to the University from the Parish school. The connection between the Parochial and Burgh schools and the University is therefore an essential element in our scheme of National education. The only way in which this essential element can be preserved, is by insisting that the teachers in every Burgh or Secondary school, and many of the Parochial schools, should be capable of instructing their pupils, not only in the subjects common to all Primary schools, but in the elements of Latin, Mathematics, and Greek. To be satisfied with any standard of competency inferior to this would be to lower the character of education which has hitherto prevailed in this country; to deprive meritorious poverty of the means of gratifying a legitimate ambition; and to destroy the link which has hitherto united our schools with our Universities, and which, according to universal consent, has proved of the utmost value to the people of this country. "So far," it has been truly said, that—"as industrial culture has an industrial value, makes a man's business work better, and helps him to get on in the world, the Scotch middle class has thoroughly appreciated it, and sedulously employed it, both for itself and for the class whose labor it uses; and here is their superiority to the English, and the reason of the success of Scotch skilled laborers and Scotchmen of business every where. In this they are like the Swiss, though the example and habits of England have, as was inevitable, prevented them from developing their school institutions, even for their limited purpose with the method and admirable effectiveness of the Swiss." In any changes, therefore, which may be made in the School-system of Scotland, the connection between the Universities and the schools should be strengthened and not relaxed, and the ancient theory of Scottish National Education should be scrupulously respected and carefully developed. It has been shown† that there are districts in Scotland where there is no Burgh school, and where the Parochial teacher must discharge the duties of a Burgh schoolmaster.

The general import of the Reports of Assistant Commissioners and of that of Mr. Fearon, is that the Burgh and other Secondary schools of

* Book of Discipline—vol. II. pp. 209, 210, Knox's Works (Laing's Edition.)

† P. 146, Report of Messrs. Harvey and Sellar.

Scotland are in a satisfactory condition, and superior to the majority of the English Grammar schools.

The masters of the Burgh schools would oppose *ad vitam aut culpam*, which in some instances proves a serious detriment to the school, but gives character to the position. This evil it is proposed to remedy by authorizing a governing body to provide for all cases of incompetency arising from one or other cause.

With respect to the constitution and management of the Burgh and Middle-class schools, it may be stated generally that they are of three kinds:—*First*, There are the schools under the exclusive management of the Town-Councils. These are all Day-schools. *Secondly*, There are the schools under the joint management of Town Councils and others, appointed under some deed or other agreement. *Thirdly*, There are the schools under trustees or managers, altogether disconnected with the Town-Councils as such. If we compare the advantages which result from these various forms of management, it will appear that, upon the whole, the Town-Councils have exercised their patronage from time immemorial with impartiality and fairness.

We are of opinion that suitable retiring allowances should be provided for all cases of incapacity arising from age or ill-health; so that the Burgh schoolmaster may be placed in precisely the same position in this respect as that of a Professor at the University.

As to school buildings, the following are the conclusions of the Assistant Commissioners:—

- (1.) "In their general condition 34·5 per cent. are good; 25·5 per cent. are fair; 30·9 per cent. are indifferent; and 9·1 per cent. are bad.
- (2.) The play-grounds are sufficient for healthful exercise, but not adapted for games, either by their size or their character.
- (3.) The offices and outhouses are almost without exception bad.
- (4.) The repairs on the buildings are executed mostly in an economical, and sometimes in an illiberal, spirit.
- (5.) The obligation to maintain the buildings is almost always acknowledged and acted on by the authorities.
- (6.) The accommodation is sufficient for all who choose to attend."

Scholars and Teachers.

As to Teachers and Scholars the following are the conclusions of the Assistant Commissioners:—

- (1.) "As 71 per cent. of the teachers in the Middle-class* schools in Scotland have had University training, it is obvious that the influence of the Scottish Universities is very considerable; but as only 36 per cent. are graduates from any University, the special qualification conferred by a degree is not in such universal demand as would seem to be desirable.
- (2.) We can come to no satisfactory statistical result as to the exact proportion of scholars to teachers in the different schools, and averages on such subjects are very deceptive. But it appears that the maximum of scholars to one teacher in many schools is too high, and the minimum is too low, for efficient teaching and efficient work.

* In a social point of view the Middle classes, as defined by the Commission "are between the landed aristocracy and the wealthy professional and commercial classes on the other."

(3.) The personal relations of teachers to scholars, so far as they go, seemed in the main to be highly satisfactory.

(4.) Scholars come very young to the Public schools, and leave very early. More than half the number, or 56 per cent., attending these schools are under twelve years of age, and about 16 per cent are under eight years of age. To the Private schools they come later and remain longer in them.

(5.) The influence of Mixed schools of boys and girls is not beneficial from a social point of view; but, intellectually speaking, there is a good deal to recommend in such schools. There seems to be no reason why girls should not have the same educational advantages as boys, as they appear to make quite as much of what opportunities they have, and in some branches they are distinctly superior to the boys. If they are taught on the same system, and by the same masters, they should have distinct schoolrooms, and be kept separate from the boys, and under their own lady-superintendent.

(6.) Boys at Scottish day-schools work nearly twice as many hours each year as boys at the three principal English schools. The hours appear to be too long in the Scottish schools. Nine hours a day for five days in the week, is about the average, and steady work for that length of time is too much to expect for a boy under sixteen years of age.

(7.) There is great deficiency in places of recreation and neglect of physical education in all the Scottish schools as compared with English schools.

The Commissioners dissent in part from the conclusion of their Assistants as to the bad social influence of Mixed schools for boys and girls. "It is certain that if the separation of boys and girls is insisted upon, it will be difficult to supply the latter with the same educational advantages which they now enjoy. And according to Mr. Fearon and many others, there is no ground for disapproving of the system of mixed schools. In the larger towns, such as Glasgow, Edinburgh, and Aberdeen, girls are excluded, so that the practice is not uniform even in Scotland. But, speaking of other towns, Mr. Fearon says:—

"I had already, before my visit to Scotland, been used to inspect mixed Grammar schools of boys and girls in the north of England (*e.g.*, the town of Alnwick in Northumberland.) I have never seen any reason to disapprove of this mixture of the sexes in day-schools under careful management and judicious regulations; nor is my view at all altered by what I observed and heard in my school tour. I did not remark any levity or faults of discipline in Ayr, Hamilton or Perth Academies, and I was told that no instance had occurred of any mischief resulting from such meetings of boys and girls in these day-schools. On the contrary, I am inclined to think, from what I saw in Scotland, that the presence of the girls both civilizes and stimulates the boys, and that the opportunity of working with the boys strengthens the judgment and braces the mental faculties of the girls." It may be interesting to observe that the system of mixed schools prevails in America. As to the effects of mixing the sexes at school, Mr. Fraser, the American Assistant Commissioner, says that he entertains grave doubts, although he admits that "the Americans pursue their course apparently without mistrust—without anxiety."

Such being the state of the evidence upon this subject, we hesitate to condemn a system which is supported by those who have the keenest interest in its moral results, and have the option of putting an end to it, if they consider any such change desirable.

With respect to the organization of the Burgh schools opinions vary. Whether or not there should be a Rector with subordinate masters, or masters with co-ordinate power—whether there should be a fixed curriculum, or parents should be left to select such subjects of instruction as they may think advisable—whether the promotion from class to class should be regulated by routine or by proficiency—whether each master should have his own class, and appropriate to himself the fees of his scholars, or the fees should be paid into a common fund,—are questions of great practical importance, on which there appears to be much difference of opinion. Upon the whole, we think that they should be left, in the meantime, at all events, to the decision of the local managers. Either view of any of these questions is attended with its own advantages and inconveniences, and we are not prepared to say that there is such a preponderance of opinion in favor of either view as to warrant the interposition of the Legislature or of any central authority in regard to them.

The general conclusion of the Commission as to the subjects and methods of instruction is that the education given in most of the Schools in question is sound, *so far as it goes*, and is adequate as a preparation for the Scottish Universities. This conclusion corresponds with that arrived at by the English Assistant Commissioner.

With respect to the Finances, it is stated that the total endowments of the Burgh schools under the partial or exclusive management of Town-Councils do not exceed £3,000 a year, while the fees paid by the scholars reach the sum of £42,000 per annum, and the total income from all sources amounts to £50,000.

But there is great difficulty in ascertaining the cost of education at the Secondary schools of Scotland. Upon this question the Assistant Commissioners observe:—

“The cost of education in the elementary department of the Burgh schools varies from 4s. to £1, 1s., and is on the average 10s. 6d. a quarter. The cost of education in the higher department of the Burgh and Public schools is to be taken on three separate scales. The average of the lowest class of schools, that is to say the cheapest, is 17s. 7d. a quarter, or £3, 10s. 4d. a year. The average of the second class, which is the most numerous, is £1, 15s. 8d. a quarter, or £7, 2s. 9d. a year, and the average of the third class is £3, 6s. 9d. a quarter, or £13, 7s. 2d. a year.” In Scotland, the cost of education from all *public* sources, in both the elementary and higher departments, is about 16s. a head. In France the State grant amounts to £1, 17s. for each scholar, besides grants by the Municipalities; and in Prussia to £1, 1s. besides about 20s. from the Municipalities.

The attempt to compare the cost of Middle-class education in England and Scotland is almost impracticable. But Mr. Fearon came to the conclusion that the cost of instruction in Scotch Secondary Schools is not really less than that in English Grammar schools. There is, however, a great and most important difference as to the way in which that expense

is provided in England and Scotland, and the view which is taken of it in the two countries. In England the endowments are, in some instances, very large, so much so that the foundations of Eton and Winchester together, according to the report of the Assistant Commissioners, possess greater revenues from this source than those of all the Burgh schools and Universities in Scotland taken together. In Scotland the same class of Schools are scarcely endowed at all. In England, therefore, the cost is borne by the endowment, or, as Mr. Fearon would say, by the public. In Scotland it is borne by the parent; and the contrast between the £3,000 a year in endowments and the £42,000 a year contributed by the parents amply confirms this opinion.

It appears to us that already the fees paid by the parents are sufficiently high; and indeed complaints are sometimes heard that they are too high. Certain it is that the scale is much higher than prevails in any other country. At the same time, it is equally apparent to us, that the teachers are, in many instances under-paid. From the evidence furnished to our Assistant Commissioners, it appears that "the highest income after paying assistants, was £1,000 a year, and the lowest in a Burgh school was £41. Each of these extremes, however, was quite exceptional, and the scale of emoluments may be said to range between £120 and £300. These emoluments represent all that the masters receive. There are no houses attached to their office, except in the case of the endowed schools in Dollar, Fochabers, St. Andrews and Newton-Stewart, and a few Burgh schools." Again they say:—"In conclusion, we would call particular attention to the poverty of the schools. Their most notable feature is the want of endowments." In the same spirit, Mr. Fearon says:—"I can not help thinking that the want of endowments is carried to excess even in the Burgh schools. Teachers seemed to me to be sometimes a little too dependent on the precarious liberality of Town-Councils; and occasionally, in the case of those among them who profess a less popular subject, such as the classical masters in a purely commercial Town, to be under paid, and scarcely able to support the position of a gentleman. Their mode of payment generally proceeds on a right principle, but their minimum salaries are often a little too small. And" he adds, "there ought, at all events, to be a liberal and well regulated system of retiring pensions."

In these observations the Commission concur, and recommend that a Public grant of money should be made for the purpose of supplying retiring pensions to teachers in Burgh schools, who by age or ill-health have been unable to discharge their duties, under the regulations of the Committee of Council, dependent on a corresponding contribution from the Burgh funds; and the Burgh authorities should have power to assess for such contribution.

To this general view of the condition of Secondary Education in Scotland, we add on some points, the statements of the Assistant Commissioners in detail.

EXTERNAL ORGANIZATION.

Viewed in reference to their external organization, the Burgh and Middle-class schools of Scotland may be divided into three main groups.

1. Schools under the exclusive management of the Town-Councils.
2. Schools under the joint management of the Town-Councils and others.
3. Schools under trustees or managers altogether disconnected with the

Town-Councils as such.

1. The first class of schools is the most numerous, and contains twenty-nine out of fifty eight schools from which we have returns, and most of which were visited and examined by us. Originally it included nearly all the Public schools in Burghs, but circumstances, to which we shall afterwards allude, withdrew a number of them from the exclusive control of the Town-Councils. The constitution and management of these schools is nearly identical in all cases. They are exclusively day-schools, and with the exception of Glasgow, Edinburgh, and Aberdeen, are open to both boys and girls. The powers and obligations of the Town-Councils are mainly these—the appointment of the masters; the maintenance of the buildings; the regulation of salaries; fees; holidays; timetables; subjects of instruction; and, in a word, every thing that concerns the school independently of the teaching and discipline. These, as a matter of fact, they leave in the hands of the teachers themselves. In former times they exercised much more extensive power than now.

2. The second group contains sixteen schools. They are nearly all entitled Academies, and most of them were founded at the end of the last or beginning of the present century. They owe their origin to the confusion into which schools and departments of schools had come, to the bad condition of the buildings, and to the desire on the part of the authorities and the public to improve the condition of education within their respective bounds. One feature that originally distinguished them from the Burgh schools in the first group was, that they were seminaries, not for classics only, but for all the ordinary branches of education. This feature as a distinctive mark they have lost, now that Grammar schools universally have extended the basis of their studies, and have all been more or less remodeled to suit the requirements of modern times. The peculiar characteristic that they still retain is the mixture of a proprietary element in the management of their affairs. Ayr, Inverness, and Dundee may be taken as representatives of this group, and indicate sufficiently the various combinations that occur in the management.

3. The third group of schools includes thirteen. Of these, however, eight may be at once dismissed from consideration as Parochial and Proprietary schools. Of the remainder, the Madras College, St. Andrews, and Dollar Institution represent two forms of management by trustees, in each of which there are peculiar features which deserve consideration.

In the year 1831 there were in existence two public schools in St. Andrews under the patronage and control of the Town-Council. One of these, the Grammar School, had existed from time immemorial, the other, the English School, was of more recent date. In the above-mentioned year, Dr. Andrew Bell offered a sum of £50,000 to found a school in St. Andrews on certain principles which he believed to be of the utmost importance. This sum he conveyed in trust to the Provost of St. Andrews, the two ministers of the church, and to the professor of Greek in St. Andrews University, and at the same time expressed his wish to the Town-Council that they should discontinue the schools under their direction, and allow them to be merged in the new institution which he proposed to found. The Town-Council readily acted on this suggestion; they at once denuded themselves of the patronage of the Public schools, and handed it over to the trustees nominated by Dr. Bell. They took occasion at the same time, "to express and record in the strongest terms their deep gratitude to Dr. Bell, and that of the community at large, for his princely and munificent grant for the purpose of promoting education in his native city, to be conducted on his own excellent system," and "requested the Provost to express to Dr. Bell the high sense of obligation under which the Council felt themselves and the community laid by the Doctor's unparalleled liberality to the city." They agreed, also to hand over their own Grammar school-house and Garden to the trustees, and relieved themselves entirely of all obligations and privileges connected with the education in the city. The management of the school is vested in the Provost of St. Andrews, the two ministers of the parish, and the Sheriff-depute of Fife, who has succeeded the Professor of Greek. In addition to them, the Lord Justice-Clerk of Scotland, and the Bishop of the Episcopalian Church in Edinburgh, are nominated patrons, but their duties are more nominal than real. They have a veto upon the nominee of the trustees, but, so far as we have heard, they have never exercised that veto. The power of appointment practically remains in the hands of the trustees. In other respects also the constitution of the school is peculiar. Fees are exacted from children whose parents are able to pay, and are arranged in different scales according to that ability; but there is also a gratuitous department for children whose parents can not afford school fees.

Dollar Institution illustrates the case of a school under a large body of trustees and situated in a rural district, and not in a burgh. From the special reports on Dollar, we extract the following statement of facts:—

John M'Nab, in 1800, left a large sum of money "to bring an annual income or interest for the benefit of a charity or school for the poor of the parish of Dollar and shire of Clackmannan." The nomination of trustees was in the following terms:—"I give and bequeath to the ministers and church of the said parish for ever—say to the ministers and church officers for the time being; and no other person shall have power to receive the annuity but the aforesaid officers for the time being;

in their right, appointed for the time by them." The ambiguous wording of the will gave rise to legal difficulties, but the money, amounting to £92,345, was in 1818 handed over to the trustees, and applied to the erection and maintenance of the present Institution. The managers are—The minister of Dollar and four elders of his Church, the minister of Clackmannan, the minister of Alva, the Principal of the University of Edinburgh, the Lord-Lieutenant, Vice-Lieutenant, Convener and Sheriff of Clackmannan, the patron of the parish of Dollar, all heritors of the parish who are assessed for parochial burdens upon a real rent of £200 per annum within the county, and two persons standing on the roll of the Parliamentary electors of the parish of Dollar, to be chosen by the parliamentary electors. In all, there are thirty-one persons with equal voice in the direction of the affairs of the Institution. By the constitution of the school, a free education, together with school-books, is given to the children of laborers and workmen in the parish. About half of the scholars belong to this class. Others pay fees of a moderate amount.

The separate advantages of each form of organization are thus stated in a report of the Educational Commission:—

The arguments in favor of the first class are mainly these:—

1. To the Town-Councils is due the existence of all, or nearly all, the Burgh Schools.

2. The Town-Councils represent the classes who use the Burgh schools.

3. They have exercised their patronage from time immemorial with impartiality and fairness on the whole. Isolated instances came under our notice in which the predominant Church element, whatever that chanced to be, was accused of favoring candidates of particular views; but an inquiry that we instituted in each school as to the religious denomination to which the teachers belonged, brought out the fact that, all over the Burghs of Scotland, the Established Church, the Free Church, the United Presbyterian Church, and other smaller sects, were fairly represented. So much was this the case, that, after pursuing these inquiries for some months, we continued them in the end rather as a formal matter, and for the sake of uniformity, than with any expectation of finding confirmatory evidence of partiality arising from Church feeling.

4. The Town-Councils must, under any system, be one of the main sources to which the public must look for the funds necessary to pay the teachers and maintain the buildings. To sever the connection, therefore, of the schools with the Town-Councils, would be much the same as to discontinue the connection between the heritors and the parish schools in the case of the latter.

5. The Town-Councils understand the educational wants of the community, and in their respective Burghs are generally ready to introduce such changes as may be demanded by the public.

On the other hand, some of the objections to them as managers are these—

1. They are a variable body. Members are constantly coming into the Council who have every thing to learn about the Burgh schools, while others, who have made themselves masters of the subject, go out of the Council, and the benefit of their knowledge and experience is lost.

2. As a managing body, their movements are complicated and slow.

3. They are too much inclined to regard merely the wishes of the community, without reference to what is absolutely best in the way of education.

4. They are illiberal in the way of salaries and repairs.

2. In the second class of burghs, where subscribers are represented in the management, the above arguments in favor of the Town-Council apply, with these additional points, that the constitution of the board is more liberal, and that it contains members who, in virtue of their election, may be supposed to take a more lively interest in educational matters than the ordinary Town-

Councillors, while, on the other hand, the first and fourth objections lose much of their weight.

3. In the third group of schools (if we take the Madras College and Dollar Institution as representatives), the arguments in favor of the Madras constitution seem to be—

1. The directors, being a small body, are able to act with promptitude and decision.

2. They are likely, from their position, to be men of enlightenment and intelligence.

3. As the responsibility rests on the shoulders of the resident directors, they are likely to take a personal and active interest in the affairs of the school.

On the other hand, some of the objections are these—

1. The number of managers is too limited.

2. The paramount influence of one ecclesiastical body is dangerous. However anxious and zealous the present trustees may be to do their best for the school, "there is no guarantee that the Established Church ministers of St. Andrews will always be men zealous in education; and there is always some misgiving in men's minds as to the impartiality of elections when the electing body belong exclusively to one sect."* In connection with this argument, it is not to be overlooked that even at present all the principal teachers are Established Churchmen.

3. The total severance of all connection with the Town-Council is unsatisfactory. This, however, was the voluntary act of the Town-Council themselves. In denuding themselves of their patronage, there is some doubt how far they acted legally; and according to the opinion of counsel, stated in the Appendix, they by so doing seriously compromised the position of the masters in the school.

4. Free education, unless in exceptional cases, is liable to be abused, and is contrary to the practice in Scotland. This objection, if it be one, applies to all the schools of this group, apart from the parish and Proprietary schools.

In regard to the Dollar Institution, as it at present exists, all that can be said in its favor is that its constitution represents all the middle and upper classes of the parish and county. The two chief objections to it are these—

1. The very large number of trustees, and the fact that, owing to the property qualification, this number may be increased almost indefinitely.

2. The constant interference of this large mixed body in the internal management and discipline of the school. It is conceivable, however, if the power of the trustees were delegated to a small committee of their number, that the management of this school might be exceptionally good.

On the whole, if the arguments for and against the management of the three different groups of schools have been fairly stated, the preponderance is in favor of the first two as compared with the third, and the second has some advantages over the first. These, however, are not very great, and instances have occurred, as in Hamilton, in which the subscribers have voluntarily renounced their share in the management and have restored it absolutely to the Town-Council. It is to be borne in mind also, that where subscribers are admitted to a share in the control of the schools, they have to pay liberally for the privilege. Probably most of the Town-Councils would not be unwilling to admit others than themselves to this privilege, if they would come forward with handsome subscriptions and endowments.

MANAGEMENT OF BURGH SCHOOLS.

The opinions of Professor Blackie, of Edinburgh University, Professor Campbell, of St. Andrews, and other eminent teachers on the organization and management of the Burgh Schools were gathered, and they nearly all agree in retaining a larger infusion of the Town-Council element, with a combination of educated citizens elected from the clergy, parents and the old pupils, who have no seats in the Council. They all

* Special report on Madras College, St. Andrews.

agree in submitting the local boards to the guidance, direction and control of a central board for Scotland.

TENURE OF TEACHERS' OFFICE.

(1.) In the case of Burgh schools under the management of the Town-Councils, there is no doubt that the masters' tenure of office is *ad vitam aut culpam*. It is also so regarded by the authorities themselves, and by the teachers.

(2.) The second group of schools, those under the joint authority of subscribers and members of the Town-Council, claim for themselves a greater liberty in this respect. The directors conceive that, in virtue of their charters of incorporation, and other peculiarities, their schools are not pure Burgh schools, even although they have superseded and represent the old grammar schools of the town.

(3.) In the third group of schools, apart from those that are parochial, the directors, as a rule, can make their own bargain with the school-master, although even here the question of arbitrary dismissal is not without its difficulties. In St. Andrews, for instance, the classical department represents the old Grammar School, as the English department represents the old English school; and, as representative of the Grammar School, the master conceives his tenure of office to be *ad vitam aut culpam*. The trustees, on the other hand, conceive that, in virtue of a minute of appointment, concurred in and signed by Dr. Auld his tenure is the same as that of the other teachers, viz., from year to year.

In the course of our inquiries, the evils of an *ad vitam aut culpam* tenure occasionally came before us. In several instances we found schools and departments in a depressed and unhealthy condition from the difficulty the directors had in the way of getting rid of incompetent teachers.

The following suggestions of a retiring allowance to superannuated, or infirm teachers would correct the objections to the life tenure of office.

Professor Campbell thinks "that the masters should not hold office *ad vitam aut culpam*. Gross negligence or mismanagement should make them liable to dismissal by a majority of the managing board, subject to an appeal on both sides to the Central Educational Board. . . . Provision should be made for pensioning off teachers who have worked well for a certain number of years, or who are disabled by physical infirmity. The fund for this purpose might arise partly from a tax on the teachers themselves, and partly from a public grant."

Professor Sellar, on the same subject, says, "The board (of management) should see that the head master performs his duties faithfully, and might have the power of censuring, suspending from his office, or dismissing any of the masters, this power being exercised subject to a right of appeal to the Central Board." In another place he adds: "The Burgh schools seem to me, more than any other institution in the country, to require additional endowments, including retiring allowances."

Professor Veitch is of opinion "that there should be authority on the part of the Central Board to remove a master on proof being led satisfactorily to the Board of incompetency and remissness in the discharge of his duties. A competent retiring allowance should be provided for cases of long service and infirmity. This, while just in itself, would facilitate the removal of teachers who had become unfit for duty through old age."

Dr. Donaldson, of the High School, expresses an opinion worthy of much attention. "The tenure of office," he says, "is one of the most difficult problems with which we have to deal; for, on the one hand, if the tenure of office is at present *ad vitam aut culpam*, it is very possible for a teacher to do great damage to a school by continuing to occupy his place when he is utterly unfit for it; but, on the other hand, if his tenure is not *ad vitam aut culpam*, the dignity of the teacher's office is materially impaired; he does not work with the same independence and freedom of mind, and as the value of the office is lessened by a precarious tenure, men of eminence are less likely to be attracted to the teaching profession under such a tenure than under a permanent one. I think that the University Commissioners in dealing with the tenure of professorship have taken the wisest course. The *ad vitam aut culpam* tenure should be retained. Retiring allowances should be definitely settled, and, after a certain amount of service, the Town-Councils should have the power of compelling teachers to accept of these.

SCHOOL BUILDINGS—PLAYGROUNDS—LIBRARIES.

Out of fifty-five Burgh and Public schools of the Secondary order, the Commissioners of 1866 found nineteen in good condition, fourteen fair, seventeen indifferent, and four bad.

Aberdeen and Edinburgh furnish examples of good schools. The buildings themselves are almost noble structures, placed in admirable sites, with lofty and commodious rooms kept in thorough repair, well supplied with all necessary furniture and apparatus, and reflecting in themselves the interest which the authorities and the citizens generally take in the cause of education. It must be acknowledged, however, that these two schools are exceptionally good, and that amongst the others of this class there are many shades of difference, but all have characteristics in common that entitle them to the first rank. Nearly all the endowed schools under trustees belong to this group. This arises from two causes—the large funds at the disposal of the managers, and the tendency of such directors to be more liberal in their expenditure upon buildings than Town-Councillors and others acting for the general interests of the community, jealously watched, and liable to be called to account for their application of the public funds. In some cases it is questionable whether the trustees would not have exercised a wiser discretion in refraining from a lavish display on buildings, and apportioning, instead, a larger part of their endowments to their masters. We are not disposed, however, to quarrel with handsome and suitable buildings in the interest alike of teachers and students.

Of the site and buildings of the Academy at Kilmarnock, the Commissioners observe:—

The site is moderately good, and, at the date of the erection of the Academy, was one of the best in the town. The furniture is bad and worn out. The necessary repairs are not done in a liberal spirit by the heritors and the Town-Council. There are frequent gaps in the windows from broken panes of glass, which it seemed no one's duty to replace. The floors and walls of the class-rooms are uneven and dirty. The play-ground is small and inadequate. The outhouses are inconvenient. Altogether the place presents an appearance of dilapidation and decay.

Good and commodious buildings, such as those in the first and second class, are essential to health and energy; and while we can not say with truth that the character of the teaching can be inferred from the condition of the buildings, this much is true, that the buildings indicate unmistakably the interest taken by the respective burghs in the cause of a liberal education, and their regard also for the physical and mental wel-

fare of teachers and scholars. It is therefore satisfactory to find that, on the whole, the buildings of the Burgh and Public Schools are commodious and suitable.

One or two peculiarities they have in common. 1. Very few of them are surrounded by play-grounds suitable for cricket or other games. They mostly possess a gravel yard, in which the scholars run about in the intervals of play, and covered sheds in which they may shelter themselves in wet weather. This want of play-grounds is connected, no doubt, with the fact of their being exclusively day-schools. The relation of the scholars to the school, to the teachers, to one another, is altogether different from that of boarders. The schools are places for work, and for work alone. When that is done, boys and masters separate, and the boys, as a rule, are expected to leave the school grounds, and indulge in no recreation that may cause damage to the buildings. The short intervals that they have for play in the course of the regular school hours are insufficient for any settled games. The boys themselves are not united together in the free companionship of boarding-schools, but have separate homes, and objects of interest that draw them different ways. Within comparatively recent times, however, some of the more important Burgh schools, following the lead of the Edinburgh Academy, have provided fields as playgrounds for their schools, at a convenient distance from the school. Such appliances however are, after all, luxuries, rather than necessities in the case of day schools. As a matter of fact, also, there is no evil result from their absence. There is no want of physical life or energy or health apparently in the youth attending the Burgh schools, and, although we should like to see a larger and a freer space for games than most of them possess, their non-existence saves the boys from expenses which seem inseparable from amusements conducted as they now are, and from an excessive and absorbing interest in matters of an inferior and secondary moment to the real business of education.

2. A second point to be noticed is this. Scarcely any of the schools possess libraries. This is due, however, to the want of funds and endowments. Edinburgh High School is an exception, in this respect, to the general rule. Its library was founded in 1658, on the recommendation of the head master. The first supply of books was given by the teachers, and by voluntary contributions from the citizens and pupils of the school. For many years it has been supported out of a moiety of the matriculation fees. "It includes," says Dr. Steven, in his *History of the High School*, "the best Greek and Latin lexicons, the best editions of the classics, several encyclopædias, and a valuable collection of antiquarian, historical, and geographical authors." Its use, till a comparatively recent date, was confined to the masters and boys of the higher classes, but it is now open to all the pupils. It contains nearly 7,000 volumes. The Edinburgh Academy also possesses a school library of moderate dimensions. Not many years ago, Glasgow High School possessed a small school library, of which the janitor was the guardian, but at present it does not seem to

be in existence, or at least in operation. Aberdeen has nominally a library, but there are very few books in it. And the almost invariable answer to our inquiries was, that the "pupils had access to no school library." After all, however, comparatively few boys of the age of those at Grammar schools, will be found to take advantage of a library.

For the sake of poorer students, however, who can not afford expensive dictionaries and books of reference, a well-chosen library of moderate size would be a valuable addition.

The Report under the general head of Buildings concludes :

1. In their general condition 34·5 per cent. are good ; 25·5 per cent. are fair ; 30·9 per cent. are indifferent ; and 9·1 per cent. are bad.
2. The playgrounds are sufficient for healthful exercise, but not adapted for games, either by their size or their character.
3. The offices and outhouses are almost, without exception bad.
4. The repairs on the buildings are executed mostly in an economical, and sometimes in an illiberal, spirit.
5. The obligation to maintain the buildings is almost always acknowledged and acted on by the authorities.
6. The accommodation is sufficient for all who choose to attend. While the actual attendance in 1866 was 12,145 pupils, there was accommodation for 28,099.

FINANCIAL CONDITION.

The Secondary schools of Scotland derive their support from : 1. Endowments. 2. Annual grants made by Town-Councils and others. 3. Bursaries. 4. Fees and Cost of Education. 5. Emoluments of Masters.

(1.) *Endowments*.—Under the head of endowments is indicated the mortifications and bequests applicable to the teacher for school purposes generally, and not the bursaries enjoyed by the scholars. These are not large, except in five instances, and the total annual income does not exceed \$13,000. The five largest endowments are as follows :

Madras College was founded in the year 1831, when a sum of £50,000 was handed over by Dr. Andrew Bell to the Town-Council of St. Andrews, on certain conditions. Half of the sum or £25,000, was spent in the purchase of ground, the erection of the College and masters' and janitor's residences. The other half has been invested in lands, Government stock, etc., which altogether yield an income of £1,454.

The Cupar Academy was also founded in 1831, and owes its origin, like the Madras College, to the munificence of Dr. Andrew Bell. An estate, estimated at £10,000 was bequeathed for its endowment, the rental of which is £670.

Dollar Institution was founded by John M'Nab in 1818. The money left for its endowment was £92,345 and the present income of the school from dividends and feu-duties is £2,253.

Milne's Institution was founded by Andrew Milne, (who made his fortune in New Orleans) in 1846. The endowment consisted of a capital sum of £20,000 which yields an income of £626.

The Ewart Institute was founded in 1863 by two brothers, James and John Ewart. It is composed of two parts, a Ragged and a Middle-class school. The amount of the endowment was £17,000 and the income applicable to the Middle-class school, and paid to the teachers during the last financial year, was £240; but the Institute will ultimately be much richer, as there is a considerable sum still held in life-rent by an aged person.

Of the sixteen schools or academies that compose the second class, only six have permanent endowments. The total value of these is about

£870. They vary from £20 a year in Arbroath, to £350 in Dundee. These endowments are due to various sources: to ancient mortifications, to individual generosity, or are the balance of money that was left after the erection of the buildings. It will be observed that the aggregate value is trifling, and that in regard to their endowments the Academies are much on the same footing as ordinary Burgh schools. But it would be unjust to their founders, and to the liberality of their original subscribers, who restored and remodeled so many of our Grammar schools, not to mention that these permanent endowments represent but a very small portion of the pecuniary good done to the community by the establishment of the Academies under a joint directorate. In almost every case they took the place of ruinous and decayed buildings, and the amount of money invested in them in this shape was quite as valuable as any endowment could have been. In Dundee, for example, the school buildings, including ground and fittings, cost upwards of £11,000. The expense of the building was defrayed entirely by subscriptions, the town contributing only the site, which was given at a nominal rent. Greenock Academy cost the subscribers £7,243; Dumbarton, £6,500, of which £1,500 was given from the Corporation funds; and Aberdeen New Grammar school (although, for reasons given in a former chapter, it is not included in this class of schools) cost private individuals and the town no less than £16,600.

Of the twenty-nine Burgh schools of the first class, nineteen have no endowment whatsoever; ten have endowments, which amount altogether to about £1,400. Among the unendowed schools it is strange to find that of Glasgow. It is almost inconceivable that no portion of the Church patrimony, which was devoted to religion and education in 1560, should have fallen to its share; but we have been unable to trace any revenue from this source, and if it ever existed, it has long been mixed up with the general funds of the city. The best endowed schools of this class (and they are also the most liberally supported by annual grants) are Edinburgh and Aberdeen. The former has an income, applicable to the teachers and general school purposes, of £518, and the latter has for more than two hundred years possessed an endowment of considerable amount. Its annual value is £164. In the cases of St. Andrew, and Cupar, the authorities bartered their rights.

(2.) *Annual Grants.*—The general usage in burghs is for the authorities to attach a certain salary to the office of the different masters at the time of the appointment. There is reason to believe that in many cases these salaries represent ancient endowments and the income from Church lands and other sources that were dedicated to the Burgh schools before and after the Reformation. As a matter of fact, the salaries of the teachers are now paid out of the common good, and the alterages, glebe lands, and other possessions, of which we hear in Renfrew, Paisley, Irvine, and elsewhere, have long been lost sight of as special sources of income.

As a general rule, the rector or head master had an allowance of £20

to £100, and where there were several teachers of departments, frequently two or more had allowances. The total amount of the sum thus voluntarily subscribed for salaries during the last financial year was, in round numbers, £3,500. This, however, represents only a portion of the sum contributed by the Town-Councils. They are in the habit of making annual grants to each school for prizes, feu-duty, repairs, and other necessary expenses. The outlay on these other items varies very much in different burghs, and even in the same burgh from year to year; but except perhaps in one particular, in the purchase of prizes, which are distributed with a very liberal hand in some of the schools, it is restricted within the narrowest limits. A frugal spirit regulates the expenditure, more especially on repairs. Few of the burghs spend annually more than ten or twenty pounds on general school expenses. In several of them we failed to find any sum entered in the burgh accounts under this head. Some of them, however are exceptionally liberal, and among these may be mentioned Aberdeen, Edinburgh and Glasgow. The first of these burghs contributes, apart from salaries, no less than £880, and it has undertaken an annual burden of nearly the same amount till the year 1876, when its building debt will be extinguished. The total amount of grants made for general school purposes by the different Town-Councils is about £2,100. Altogether, therefore, the burgh contributions, both for salaries and other items, amount to about £5,600, divided in the way that we have shown, namely, £3,500 to salaries, and £2,100 to other items.

(3.) *Bursaries*.—Out of all the Public schools from which we have received returns, forty-two have no bursaries; the rest have an annual income applicable to this purpose of £1,630. Of this sum, £1,272 are devoted to boys at school, and £358 to students at college. There are besides, a few money prizes that might be included under this head, but they are insignificant in number and value. Here and there also, throughout the schools, we found boys in the enjoyment of bursaries that paid for their books and fees.

The school bursaries, which are about 170 in all, yield on an average rather more than £7 a year to each burser. There is, however, a great variety amongst them, and some are hardly worthy of the name.

All the school bursaries, however, are by no means insignificant. Even in Banff, where the average is so low, there is one bursary worth £22 a year. In Inverness Academy there is a large endowment called the Mackintosh or Farr Fund. By means of it ten boys are clothed, educated, and boarded, at an annual cost of £499, or £50 a head. These bursaries are regulated by Act of Parliament, and under it power is given to establish three bursaries at a University of the value of £60 each. This power has not yet been exercised; when it is, the number of bursars at the school will be diminished. In Aberdeen New Grammar School there are 28 bursaries that vary in value from £3 to £16. In Dundee, there is one mortification to which we would call especial attention. In

1695 a person of the name of Ferguson left a sum of money for the maintenance of two boys at the "Grammar School" of Dundee for four years, with power to send any of the boys who were "capable of learning and had an inclination to be scholars," to the University of St. Andrews when their school course was ended. This power has never been exercised by the trustees. The stock of the mortification consisted, at the close of last account, of £3,280, and the income from this, and (we presume) from other money lying at interest, may be stated at £250.

The college bursaries are much fewer in number, but more valuable than the school bursaries. There are two in Irvine of £20 each, tenable for four years, to be competed for by students about to enter college. There are three in Dumfries worth £18, £15, and £12. They are tenable each for one year. The bursars must attend the mathematical and one other class in Edinburgh or Glasgow University. They are open to all boys who have attended the Dumfries Academy for two years, and are given by competition in English, classics, and mathematics. In Dundee, two bursaries of £20 each have just been founded for the maintenance of two boys at St. Andrews. They are to be tenable for four years, and are to be given for attainments in classics and mathematics, an equal value being assigned to each subject. In Edinburgh High School there is but one college bursary of a rather peculiar nature. The dux of the High School, if he wish to prosecute his studies for one of the learned professions, and require assistance, is entitled to demand that the Governors of Heriot's Hospital should present him to a bursary at their disposal of the annual value of £20, tenable for four consecutive years during the student's attendance in the literary classes of the University of Edinburgh. In the Madras College, St. Andrews, there are eight bursaries for boys who have been educated at the school for at least three years. They are tenable for four years, and consist of—one of £20, two of £15, and five of £10. They are presented each year to the two best pupils in the classical department, and the bursars must attend St. Andrews University.

It will be seen, from the above details that the college bursaries are mostly given by competition, or are assigned to those boys who have distinguished themselves at school. We believe that they have proved of undoubted service in promoting the education of deserving students. We wish that we could say as much in favor of the school bursaries, but truth compels us to acknowledge that they do less good than might be expected, and that occasionally, from the mode of their administration, they are a positive evil. The first point to which we would call attention is the small value of most of the bursaries. A few of the less important might be retained for necessitous cases, but it would certainly be an advantage if a number of them were thrown into one, so as to raise the minimum value to £6 or £7.

In the next place, the condition of poverty attached to most of the bursaries is one of very doubtful utility. It seems, at first sight, wise

and considerate, but it would greatly increase the good done by the bursaries, and the value attached to them, if this condition were repealed. Bursaries should be the prizes of merit, and poor students, we may be sure, would win their fair share of them in open competition. As it is at present, the holder of a school bursary is more or less the recipient of charity. It was always, therefore, a matter of delicacy, on this very score, to push any inquiries about the bursars.

But infinitely worse than the condition of poverty attached to most of the bursaries, is the fact that they are given without competition. No good can ever be done till the present close system is abolished. Its evil effects were constantly brought under our notice. They mainly showed themselves in two ways; the bursaries were sought after on account simply of their pecuniary value, and the bursars were very often among the most incompetent boys in the school. In Montrose, where eight boys received each £18 and a free education in Latin, the latter, we were told, was regarded rather as a penalty than a privilege attached to the endowment. In Banff and Dundee the same tendency manifested itself to disparage the educational part of the bursary, and to value only its pecuniary advantages. In Aberdeen we directed particular attention to the bursars. Twenty-six bursaries are there given without competition. The patrons are in some cases private individuals, in others, the Town-Council and other public bodies. The rector and masters were very strongly of opinion that the bursaries should be thrown open to competition. One master, who had been twenty-two years connected with the school, said that, during all that time, only twice or thrice had the best, or even a very good scholar in his class been a bursar. The advocates of things remaining as they were, urged that the bursaries were bequeathed for the benefit exclusively of poor children, and that the intention of the donors would be frustrated if they were thrown open to competition. Of seven bursars presented by the Town-Council two were actually the "boobies" of their respective classes, and only five out of fourteen presented by them and private patrons were in the upper half of their classes. No reform will be worth much that falls short of throwing these and all other school bursaries open to competition for all who choose to come forward and submit to an examination.

By putting several of the smaller bursaries into one, by removing the restrictions that confine them to one class of boys (restrictions that are really unkind to the very persons whom they are intended to protect and benefit,) and above all, by throwing them open to competition, there is no doubt that the bursaries would prove of very great value to the schools, both in attracting good hard-working boys, and in rewarding merit and industry.

(4.) *Fees and Cost of Education.*—The chief source of the income of the schools is the fees. As a general rule they are paid quarterly in advance, but there are exceptional cases in which they are paid monthly, or at the end of the quarter. In the same school there is sometimes a want of

uniformity in the practice of the different masters. In Perth, for example, the rector of the Grammar School collects his fees at the beginning of the second and fourth quarters: the rector of the mathematical school and the drawing-master collect theirs near the end of the session; the French master at the beginning of each quarter. The English and writing-masters did not say when they were paid, but stated that the rule of quarterly payments in advance was not enforced. The total amount of the fees paid in fifty-eight Public schools was, in round numbers, £42,658, which, divided among 14,784 scholars, gives an average annual fee for each of £2, 17s. 8d.

The fees vary considerably in different localities, and depend on the character of the school itself, and the kind of education that it professes to give. Some of the Burgh schools are purely elementary; some of them are for the higher branches alone; most of them give both an elementary and a higher education. In what follows, therefore, we shall look at them in both of these lights, and keep the two departments separate.

1. In the elementary part of the school, the scholars, boys and girls, are from six to eleven years of age, and the subjects they learn are English, writing, and arithmetic. The quarterly fee for these subjects varies from 4s. at the lowest, to £1, 1s. at the highest. The usual rate in two-thirds of the schools is from 7s. 6d. to half a guinea. A second class charge from half a guinea to 15s.; and a third class, composed of a very few schools from 15s. to a guinea. These fees, however, are not charged in one sum for all the subjects taught, but the regulation of the school fees by a cumulative scale, according to the number of subjects taken, begins with the very earliest years of the course. English is generally the dearest, then arithmetic, and last of all writing, but there is no uniform law of precedence. In some schools a choice is given between following a regular course and a selection of classes, and certain advantages are offered to those who take all three subjects. Generally speaking, also, where a master teaches more than one branch, writing, for instance, and arithmetic there is a reduction in the rate of fees, so considerable in some cases that the two subjects together cost but little more than each of them does when charged separately. On the whole, the difficulty of estimating the amount of fees paid by each pupil in the junior department of the school is not great. The subjects are those that all follow; the cost of education is identical with the rate of fees, and may fairly be estimated at an average of 10s. 6d. a quarter, with occasional deviations on either side of the line as low as 4s. and as high as 21s.

2. After passing through the elementary course, there is a higher course of four or five years, in almost all the Burgh schools. The scholars in this department are from eleven to fifteen or sixteen years of age. The ordinary subjects taught are Latin and Greek, English, mathematics, French (and in a few schools, German,) arithmetic, writing and book-keeping. All these subjects are not necessarily taught in any one year, but the aim of the whole arrangements of the school is to give its scholars

an adequate knowledge of as many of these as they choose to pay for. The scale of fees for these subjects is far from uniform. The disparity that exists in this respect between schools in their elementary departments is greatly increased with the increased importance and number of the subjects.

If we divide the schools into three classes according to the scale of fees, and arrange the subjects of study under four main departments—classics, modern languages, English and mathematics, we find as follows: in the *first* class, whose fees are lowest, the scale per quarter ranges, in classics, from 5s. to 10s.: in modern languages, from 8s. to 5s.; in English, from 8s. to 8s.; in mathematics, from 5s. to 8s.; or the average quarterly fees are 17s. 7d., or £3, 10s. 4d. per year. In the *second* class, which includes Sterling, Dumfries, Aberdeen, Dundee, the quarterly fees range from 7s. 6d. to 16s. in classics; 7s. 6d. to 10s. 6d. in modern languages; 5s. to 9s. in English, and 6s. to 18s. in mathematics; or £1, 15s. 8d., or £7, 2s. 9d. per year. In the *third* class, which, includes Inverness, Edinburgh, and Glasgow, the average quarterly fees are £3, 6s. 9d., or £13, 7s. 2d. per year.

The result of our inquiries under this section, the cost of education in the elementary department of the Burgh schools varies from 4s. to £1, 1s., and is on the average 10s. 6d. a quarter. The cost of education in the higher department of the Burgh and Public schools is to be taken on three separate scales. The average of the lowest class of schools, that is to say the cheapest, is 17s. 7d. a quarter, or £3, 10s. 4d. a year. The average of the second class, which is the most numerous, is £1, 15s. 8d. a quarter, or £7, 2s. 8d. a year, and the average of the third class is £3, 6s. 9d. a quarter or £13, 7s. 2d. a year. In addition to this, the public cost from all sources, in both the elementary and higher department, is 18s. 10d. a head.*

Before passing from this subject we may be allowed to make a few remarks on the Scotch system. This system of regulating school fees by a cumulative rate is to some extent connected with the absence of a curriculum. But looking at the matter from a financial point of view, we may state our conviction that it either acts as an inducement to students to forego one or more subjects of importance each year, thus limiting their education within unduly narrow bounds, or if they follow a complete course it makes their education dearer than it ought to be. In the interests of the pupil we may fairly urge, that in every school there should be a curriculum laid down by the Directors, and that where a boy follows it there should be a reduction on the fees. We might urge it also in the interests of the masters themselves, for we are convinced that a fee is often lost altogether by the economical scruples of the parents, who would be induced by the better bargain of a prescribed course to enter their boys for a complete curriculum.

* The public cost would be considerably less—not more than 16s.,—if the schools privately endowed were exempted.

(5.) *The Emoluments of the Masters.*—The highest income that we found after paying assistants was £1,000 a year, and the lowest in a Burgh school was £41. Each of these extremes, however, was quite exceptional, and the scale of emoluments may be said to range between £120 and £800. These emoluments represent all that the masters receive. There are no houses attached to their office, except in the case of the endowed schools in Dollar, Fochabers, St. Andrews, and Newton-Stewart, and a few Burgh Schools.

In those schools where there is a rector with a definitely recognized position above the other masters, his income is higher than that of any of his colleagues. In most of the schools, however, where there is no rector, or one in name only, the incomes of the masters vary according to the number of the pupils, and no rule can be laid down for graduating the incomes enjoyed. Sometimes it is the English master, sometimes the mathematical master, and sometimes the writing-master that has the pre-eminence. In commercial towns especially, the classical master has hard work to maintain his position, and occasionally he is lowest in the scale of emoluments. This is a curious result when we remember that till within the last fifty or sixty years, and in some cases but a few years ago, the classical master was supreme, and the schools were purely grammar schools. It is, however, an inevitable result of progress, and must end, in many schools, in the position of the classical master becoming worse paid than any of the others. In order to avert this, which has been felt to be an unsatisfactory prospect, various devices have been suggested or tried. Among others, it has been proposed to throw the fees into a common stock, out of which the masters shall be paid on some fixed principle. But this is a scheme that could be worked only in a very few schools, and implies a revolution in the relations that have hitherto existed among the masters, and the substitution of an enforced curriculum for the present system of selected classes. Another solution of the difficulty has been to attach to the classical master's office one of the more popular branches, English for example, either altogether or in its higher departments. This union of Classics and English under one head-master, is at present being tried as an experiment in Ayr Academy. Should it prove successful, it might be introduced, as opportunity offered, into other schools also; and should it prove a failure, the classical master must be prepared to accept his position, and submit to a change of circumstances, which the present demands for a modern education render inevitable.

Poverty of the Burgh Schools.—Their most noticeable feature is the want of permanent endowments, and the consequent dependence of the masters almost entirely on school fees. This is not a condition of things altogether without its advantages. On the one hand as affecting the schoolmasters themselves, it has no doubt contributed not a little to the energy and success with which they have worked, while, as regards the parents, it has necessitated a liberal system of school fees, and has taught

them to value the education for which they were obliged to pay. Both of these arguments are of considerable weight, and acquire a special significance from the evil results that have attended overgrown endowments. But we can not help thinking that as it concerns Scotch schoolmasters, the argument has been pushed to a cruel length. No one would desire to see them independent of their fees altogether, and still less would any one wish the middle classes relieved of a burden which they can well afford to bear. But there is no danger of such a result either to parents or schoolmasters. There is a great interval, indeed, between the absolute want of endowments in Scotch schools, and the superabundance that might be expected to end in such disastrous results. All that any reasonable person would advocate is a moderate supplement to the masters' incomes, and a source of provision for retiring allowances.

TEACHERS AND SCHOLARS.

Out of two hundred and eighty-six masters employed in sixty-three schools of the secondary grade, one hundred and seventy-six were employed in fifty-four public schools in burghs; thirty-two in four public schools not in burghs, namely, Dollar Institution, Milne's Institution, the Ewart Institute, and Trinity College, Glenalmond; and seventy-eight in eleven private schools. In the first set of schools, sixty-one masters out of one hundred and seventy-six were graduates from some University either in this country or in England, or on the Continent; sixty-four had attended some University, but had not graduated; eighteen had been trained in Normal schools and thirty-three had no special training. In the second set of schools, fifteen out of thirty-two were graduates; seven had attended some University without graduating; three were trained in Normal schools; and seven had no special training. In the third set of schools, twenty-eight masters out of seventy-eight were graduates; thirty had attended some University without graduating; seven were Normal-school men; and thirteen had no special training. In other words, about thirty-six per cent. of the Burgh and Middle-Class masters are graduates from some University; thirty-five per cent. have been educated at some University, but have not taken any degree; ten per cent. have been trained at Normal schools; and nineteen per cent. have had no special training. From this summary, it is obvious that the Universities do a great deal for the schools in the way of providing teachers for them, and their influence upon the education of the country is thus considerable. But it will be observed that comparatively few have taken degrees from any University. If the English and foreign University graduates were deducted, it would appear that little more than a quarter of the teachers in the Scottish schools would have completed their University course in Scotland. Sufficient importance does not seem to be attached to the necessity of some distinct qualification of competency in the election of a teacher. A degree is a qualification, and it would be desirable that this were more

widely recognized. Attendance at college may constitute a good training, or it may not. If he has no degree, there is no proof that a candidate for a mastership received any benefit from his university course. If he has a degree there is some guarantee that he has been a successful student, and has carried off some benefit from his university. Of those who are graduates in the schools visited, the great majority teach the classical and mathematical departments; and, from the manner in which the majority of these departments are conducted, as compared with other departments, it appears that university training is of undoubted advantage to the teachers. Some of the classical teachers are men of high attainments and sound scholarship.

Normal-school trained teachers are not much employed in the Middle-class schools. Only nine per. cent. altogether are so returned. It is probably better that it should be so. Though technical education in the art of teaching is undoubtedly of much value for all masters, the exclusively routine teaching of the Normal schools is apt to be narrowing to the mind of the recipient. The Normal-school stamp of man is inferior as an intellectual type to the well trained University man. The former lacks the vivacity of mind and variety of illustration which comes readily to a more widely-read and more highly educated man. Their method of teaching is too contracted for the higher class of schools. In Elementary schools, the originality and power of mind which are fostered and brought out by a successful course of University instruction are not essential, or at least the absence of these qualities is not remarked. But in schools professing to give a secondary education, where the scholars are older and more advanced, the narrowing influence of exclusively Normal-school training and the stereotyped method of instruction derived from it, are at once apparent, and do not appear to be productive of good results. For the younger and more elementary classes in the Burgh and Middle-class schools, Normal-school men might profitably be employed as assistants,—and, indeed, for elementary teaching, none better could be found—but not in the higher and more responsible positions. For these, a completed university course culminating in a degree, or, still better, a degree with honors, would appear to be desirable.

In respect to the numerical ratio of scholars to teachers, and the maximum and minimum numbers of scholars in one class and under one teacher, there is a wide difference to the public and private schools, and in public schools in different localities. Taking the average throughout the whole number of schools, it appears that there are fifty-two scholars to each teacher. But taking the average number of scholars to each teacher in Public schools in burghs it is seventy-three; in Public schools not in burghs, it (including Trinity College, which is only eleven) is thirty-eight; and in Private schools it is nearly fourteen. This represents a very great diversity in teaching power, but it can be explained in the following manner:—Many of the smaller Burgh schools, such as

Arbroath, Linlithgow, and Dunfermline, are undermastered. In the first of these there are three hundred and forty-nine boys and girls in all stages of advancement in every subject, and only one master to teach them; in the second, seventy to one master; and in the third, seventy-four. In the Private schools again, visiting teachers have been returned to us as masters, and in some cases assistants have been designated as masters, and in others as assistants. In point of fact, therefore, it is almost impossible to come to a satisfactory statistical result upon this subject both for the reason above given and because any such estimate must be fallacious, as there is such a remarkable diversity in the different schools, in the different departments of the same schools, and in the different classes of the same departments.

In some schools, we found teachers with classes containing upwards of a hundred scholars; in many others we found active and energetic teachers exhausting themselves day after day with classes of five or six scholars. In both cases the result is bad. From the scholars' point of view, as well as from the teachers' point of view, large classes or very small classes are unsatisfactory. In the former case, it is impossible that a teacher can make the most of his scholars in any subject but writing. In the latter case, the stimulus of emulation is wanted to make the boys put out their strength. In large classes the teacher must neglect either the backward or the forward scholars. If he spends half of his time drilling seventy-five boys at the bottom of his class, in what the twenty-five at the top of the class know well, they must inevitably be idle and waste their time. If he devotes the greater part of his time to the twenty-five at the top of the class the remaining seventy-five will inevitably do nothing. In most of the large classes which we saw at work, we could not help remarking such results as these, producing carelessness at the top of the class, waste of time in the middle, and indolence at the bottom. In some cases, too, the discipline in these large classes was defective, and the class-room was turned into a bear-garden. In the midst of disorder, noise, and inattention, the teacher would address questions to the whole class, and in answer to each of them boys from all parts of the room would rush round him, snapping their fingers and creating a commotion in the class bewildering to scholars, teacher, and onlookers.*

* In the best schools in England, classes numbering a hundred scholars are unknown. The following table shows the maximum and minimum numbers in one division in the nine Public Schools:—

	SCHOOLS.	Maximum Number.	Minimum Number.
1.	Eton.....	48	13
2.	Rugby.....	49	24
3.	Winchester.....	41	10
4.	Shrewsbury.....	40	23
5.	St. Pauls.....	40	15
6.	Harrow.....	37	21
7.	Merchant Taylors.....	32	18
8.	Westminster.....	30	12
9.	Charterhouse.....	20	9

In the Report by the Public School Commissioners, it is distinctly laid down as a canon of

The personal relations between teachers and scholars, so far as they go, seemed to be highly satisfactory. As the schools are almost all day-schools, and the scholars and teachers are independent of each other when the day's work is over, there can be no opportunity for developing that personal intimacy and mutual dependence on each other that exists between the masters and the older boys in the English Public schools. In them the relation is quite special. The head boys in each house in these schools are placed in a manner between the master and the younger boys, and carry on all the internal discipline of the school. They are as much interested in the well-being of their respective houses as the masters, and from this relation there springs up a confidence between master and scholar, and a personal intimacy which is quite special, and which can not exist in day schools. In these the relation is more distant, and if we may use the expression, objective. It is always one of teacher and scholar interested in each other's studies, but not in each other's lives. It would be almost impossible that a friendship could be formed between a Scottish schoolmaster and his pupil of the same kind as is common in all the English Public Schools. They are never on terms of equality or of mutual dependence. The teacher's interest in the pupil, for the most part, is confined to the school-room, and when the work is over for the day, each comes under his own home influence, and there is nothing that they have in common. In school, however, the relations seemed to us to be highly satisfactory. As a rule, the bearing of the scholars to their masters was respectful, and that of the masters dignified.

The total number of scholars in the schools from which we have returns amounts to fifteen thousand, one hundred and forty-six, of whom ten thousand, eight hundred and twenty-three are boys, and four thousand, three hundred and twenty-three are girls. There is a considerable difference between the ages of those who attend public and those who attend Private schools. The scholars go earlier to the former, and leave earlier. In Public schools, about sixteen per cent. of the scholars are under eight years of age, and very nearly forty per cent. are eight and under twelve; whereas in the Private schools only five per cent. are under eight, and thirty-two per cent. are eight and under twelve. The percentage rises to fifty-three in the Private schools between twelve and sixteen, and in the Public schools it falls to thirty-seven. Above sixteen it is ten per cent. in the Private schools, and only six per cent. in the Public. In other words, more than half the Public-school scholars are under twelve, and nearly three-quarters of those in the Private

school education, that the average number in one division should not exceed 30; and the Commissioners add that Dr. Temple, the head master of Rugby, would prefer a still smaller number. "His present average," they say, "is thirty-three. He thinks that by reducing it to twenty-six the teaching would be improved." Is the Scottish schools the maximum is much higher than this, and the minimum much lower. As a single instance, the Edinburgh Academy may be adduced, where two of the classes number ninety-four and ninety-one respectively, and one of them numbers only eight.

schools are above that age. This is all the more remarkable, as two of the Private schools are essentially elementary, and intended only as preparatory to the Public schools. With regard to the statistical results of the attendance of girls, we have no returns from Private schools. In the Public schools there is no great difference between their attendance and that of the boys. It appears that of girls eighteen per cent. are under eight, forty-one per cent. are eight and under twelve, thirty-six per cent. are twelve and under sixteen, and five per cent. are above sixteen. It may be said, therefore, that they go to school rather younger, and leave rather earlier than the boys.

The conclusion to be drawn from these returns is that, theoretically, the Burgh-school course is one of eight years, three years being assigned to elementary, and five to more advanced instruction. Few, however, in the Public schools complete this course. They are drafted off at an early age to enter merchants' or lawyers' or bankers' offices, and a proportion from the best schools proceed young to the universities. In the Private schools, as we have seen, the boys remain rather longer than at the Public. This can be accounted for by the fact, that the Private schools are attended by a class of boys who are richer than the average of the Public-school scholars. They are therefore kept longer at home; and can afford to remain longer at school. In illustration of this, we may quote the answer of the head master of one of the private schools examined in answer to the question, "What difficulty if any, do you find in the discharge of your duty?" "The chief source of difficulty," he says, "is wealth. Many of the boys know that they are provided for in life, and hence the want of the spur of necessity to compel them to work." This difficulty does not occur in the public schools. The class of scholars who attend them belongs almost exclusively to the middle-class population. We have no statistical results on this subject, embracing all the schools visited, but from the tables in the special Reports, it is easy to see that the scholars belong almost without exception to the classes between the highest and the humblest. There are few, if any, of the sons or daughters of the landed aristocracy or the wealthiest professional or mercantile classes attending the ordinary Burgh schools, and very few of the sons or daughters of the laboring classes. The former class educate their boys in Private schools or in the Public schools in England or on the Continent, and their daughters at home, or in schools exclusively attended by girls. The latter class can not afford to pay the fees, low as they are, which are exacted in the Burgh and Middle-class schools and they can not afford the time occupied by the school year. Such of them as desire to prosecute their education find it cheaper and better to remain at Parish schools, and schools on that model until they are old enough to take advantage of the course of study pursued for six months in the year at the universities. Hence it is that we found a great similarity in the social condition of the scholars in nearly all the public schools visited. They are essentially Middle-class

schools, and educate the sons and daughters of the middle classes and none other.

As to the influence of Mixed Schools upon the boys and girls who attend them, the conviction that it is desirable that the sexes should be kept separate after they have emerged from childhood, to which we were led from our inquiries into the Elementary School, has been strengthened. In almost every school in which boys and girls of fifteen and sixteen years of age were brought together, strangers could not help noticing the existence of irregularities that were unnoticed by the teachers. In some cases, also, it seemed a matter of questionable expediency, whether very young assistants were the best persons to be responsible for large classes of boys and girls. Some teachers of experience considered the presence of the girls had a civilizing effect upon both teachers and boys. So far as we could judge the influence of the girls upon the boys had no perceptible effect, whereas, that of the boys upon the girls was not civilizing. In schools in which they mixed together, the tone of the latter was of a rougher and less modest character than is desirable, and it appeared as if they had formed their manners on those of the boys; in schools in which they were taught in separate class-rooms, the tone appeared good. The fact that they are taught at different hours in the same class-room is not sufficient. In schools where this is the custom, they meet on the stairs or passages going from one class-room to another, when they are not under the master's eye, and thirty or forty noisy boys set free from a class-room are certain, from the exuberance of their spirits, to treat a number of girls, whom they meet at the entrance to their class-room, with less respect than is becoming. And this can not fail to have an influence upon girls which is the reverse of civilizing.

On the other hand, where the boys and girls were pitted against each other in their school work, the latter did quite as well as the former. At Kirkcudbright Academy, where for a small school the classical attainments are high, the second best scholar, both in Latin and Greek, was a girl under sixteen years of age, who was reading Homer and Virgil. At Dumfries Academy, where mathematics was taught and learned at least as well as in any school in Scotland, the best geometrician in the class that was examined was a girl of fourteen years of age; and in the highest Latin class at Arbroath High School there was a girl of seventeen who had been five years in Latin, and was reading the first Book of Livy quite as successfully as the boys in the class with her. These instances we mention as indicating that girls are as capable of studying the more abstruse subjects of instruction as boys. In modern languages they are distinctly better scholars than the boys. Both in French and German the girls' classes were able to take more advanced papers than the boys, and they were almost invariably better done. In Dundee High School, Dollar Institution, Perth Academy, and Inverness High School, the examination of the girls in French was very much higher than any thing attempted by the boys in these schools. These, however, were not

classical schools. In Dumfries Academy, the boys did rather better papers than the girls; the cause of this probably being that the Academy is a classical school, and the drill in Latin Grammar has been of service to the boys in learning modern languages, whereas the girls have to depend upon what drill they have received in English for any knowledge they may possess of grammar. In English subjects the girls did quite as well as the boys. When a choice of subjects of examination was offered, the girls generally preferred the papers in geographical questions, the boys, the papers in grammar. History did not seem popular with either boys or girls, and papers in literature were selected only in one or two schools, and in these by boys and girls equally. Throughout all the Mixed schools the girls appeared to be more conscientious and industrious than the boys. In examinations, girls always do their best for themselves and their teachers, while boys not unfrequently are satisfied with getting the work done, and are indifferent however inadequately it may represent the pains that the master has taken with them.

The result, then, that we would come to on this subject, is that there does not appear to be any sound reason why the girls should not have the same advantages in following out their school education as the boys. They are able to learn very much the same subjects, and to be taught in the same manner as the boys; and there is no reason, provided that the staff of teachers is sufficient, why the system which is best for the one sex should not be best for the other. Music will probably be always studied more diligently by girls than by boys, and time must be found for it either by the sacrifice of some hours a week of leisure, or some of the hours devoted to other subjects by the boys. Which alternative was followed might depend upon the special circumstances of the scholar. Play-hours are more valued by boys than by girls, and plenty of them are perhaps more necessary for their well-being. If so, the sacrifice of an hour three times a week for additional instruction in music might not entail much suffering on the scholar, and by means of it she would keep on a level with the boys of the same school-standing and be able to devote the necessary amount of time to music in addition. But, to carry such a theory of girls' education into practice, considerable resources are necessary. There must be a large and an efficient staff of teachers, and there must be separate schools, one for the girls under their own lady-superintendent, and one for the boys. The hours in the two schools would have to be arranged in such a manner that the same teachers should teach in both schools, and teach very much upon the same system. In the Inverness Academy the boys and girls never meet. The girls have their own class-room, under the supervision of a lady-superintendent; but they have the advantage of being taught by qualified masters, and on the same system as the boys. The tone both in the boys and girls' school struck us as being decidedly higher than what it is in many, indeed in most, of the schools which we visited, and it appears

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to us to be desirable that similar arrangements might with advantage be more universal.

We have calculated the amount of time each year that fifty-nine day schools, Public and Private, in Scotland are in operation, and when compared with what appears to be the regular work in English schools, there is a manifest difference. The average number of weeks each year during which these schools are in operation as returned by the teachers in the different schools is forty-four. Three of these have only four weeks' holidays from one year's end to another, and every one of these, except the Edinburgh Academy, is at work for more than forty weeks each year. The holidays in this school last for thirteen weeks. The usual custom in Scottish day schools is to work a specified number of hours for five days in the week, and to have a whole holiday on Saturday. Half-holidays are almost unknown. The regular hours are from 9 A.M. to 3 P.M., or from 10 A.M. to 4 P.M. In some schools, from 9 A.M. to 4 P.M. Their working hours each year may thus be estimated:—

6 hours per day for 5 days per week = 80 hours per week.

80 hours per week for 44 weeks = 1,820 hours per year.

Those one thousand three hundred and twenty hours each year in the Scottish schools do not represent the whole work performed by the scholars. These hours are almost entirely occupied in *saying* lessons. At least three hours a day must be devoted to *learning* the next day's lessons. The estimate must therefore be increased by one-half, and the result is that a conscientious boy in a Scottish Public school must spend one thousand nine hundred and eighty hours per year upon his lessons, or forty-five hours per week, or nine hours per day. In the three English Public schools at Eton, Harrow, and Rugby the annual attendance is for thirty-seven, thirty-eight and thirty-seven weeks respectively. At Eton, it appears from the Public Schools' Report, a fifth-form boy is in school for three hours on whole school days, or about fourteen or fifteen hours (say fourteen and a half) per week; at Harrow, an upper boy is in school for four hours per day, or about twenty-two hours per week; and at Rugby he is about twenty hours a week in school. Deducting fourteen or fifteen weeks each year for holidays, and adding half time for the preparation of lessons, it appears that an

Eton boy works	604	hours	per	year.
Harrow boy	1,254	"	"	
Rugby boy	1,110	"	"	
Scottish Day-School boy .	1,980	"	"	

Six or seven hours spent on mental employment constitute a good day's work for a man who has attained his full strength, and allowing that a boy by want of concentration will not take so much out of himself in the same time as a man will, it still seems unreasonable to tax a boy's mind more than a man's. In most of the schools which we examined, we remarked that the scholars seemed fagged and worn out

during the last hour, or sometimes two hours, of the school day, and the work performed by them in the afternoon was rarely or never so good as it was in the morning. Nor was it only that the length of the daily school time seemed too much protracted. The uninterrupted time given to individual lessons in some schools was excessive for either boys or men. In most schools an hour's lesson is considered ample at one time. But an hour and three-quarters without a break is the regular lesson time at more than one school. This is unquestionably too long. Boys of nine and ten years of age can not keep up their interest for any thing like that length of time, and the energy of the strongest teacher must be exhausted by drilling classes every day of the week for two periods of an hour and three quarters each.

In the attention paid to physical education and the means of recreation provided for the scholars there is great deficiency in the Scottish Day schools. The playgrounds of all the day schools put together would not form a place of recreation of the same size as the "playing fields" at Eton or "the Close" at Rugby. With the single exception of the playground round Irvine Academy, which is three acres in extent, there are not, to the best of our recollection, two acres of grass set aside for the use of any of the schools, except the cricket field belonging to the Edinburgh Academy, and it is situated nearly two miles from the school. One or two of the schools, no doubt, have the use of the public Links for the recreation of the boys; but no part of the Links is set aside for the school,—the boys have only the same right to it as the general public. There is not a fives court attached to a single school in Scotland, and such games as the boys engage in must be played either in the street, or in the small gravel courts that surround the buildings. In the Aberdeen New Grammar School even this form of indulgence is prohibited. There is a gravel playground attached to that school of about an acre in extent, but one of the rules of the school is in these words: "As soon as the classes are dismissed, every pupil is required immediately to leave the school and playground, unless permission to remain be granted by one of the masters." In one or two day schools fencing and gymnastics are taught, but even these forms of physical education for the most part are conducted in obscure and ill ventilated rooms which can not be made available for any other purpose. The main reason for this want of places of recreation is found in the fact that the schools are day schools and the connection between the boys and the school is supposed to cease after the work of the day is over. There may be some advantages connected with this practical discountenancing of every thing connected with school but the work done in it. Too much interest in the amusements of school is apt to interfere with the more serious part of school-boy life. But, on the other hand, putting aside the actual physical advantage to be gained by a judicious intermixture of work and play, a boy loses a great deal of practical education if he and his school pay little attention to their school amusements.

(To be continued.)

AMERICAN EDUCATIONAL ASSOCIATIONS.

STATE TEACHERS' ASSOCIATIONS.

The following chapter is devoted to a continuation of the history of State Teachers' Associations, which in Volume XVI. was brought down in most of the States to the year 1864. The State to which the proceedings belong will be indicated by the running title.

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In answer to a call of the Superintendent of Public Instruction, a meeting of the California Educational Society was held in San Francisco, August 21st, 1866, for the purpose of electing officers for the ensuing year. The meeting was called to order by Mr. Swett, and Bernhard Marks was elected *President pro tem.*, and Wm. K. Rowell, *Secretary*.

The following officers were chosen:—*President*, Theodore Bradley. *Vice-Presidents*, E. H. Holmes and C. D. Stone. *Secretary*, John Swett. *Recording Secretary*, Bernhard Marks. *Treasurer*, James Denman.

The subjects of School Libraries and the merits of certain School-books, were discussed at length.

The State Educational Society next met at San Francisco, April 3d, 1867. President Bradley in the chair; when the Constitution of the Society was taken up for discussion, and, by unanimous vote, was amended, and adopted.

Sec. 1, gives the name—"CALIFORNIA EDUCATIONAL SOCIETY;" 2, provides that all holders of State Life Diplomas or State Educational Diplomas may become members, on the payment of a fee of five dollars, if recommended by the Executive Committee; 3, provides the manner of expulsion of unworthy members; 4, specifies the officers; 5, the duties of the officers; 6, provides for an Executive Committee and defines its members; 7, provides for an Examining Committee, and defines its duties; 8, defines the duties of the Executive Committee. The other sections relate to voting, assessments, and diplomas.

The California State Educational Society met at San Francisco, June 17th and 18th, 1868, the President, James Denman, in the chair. Twenty-two members were present. A number of members were added.

Mr. D. C. Stone was elected *President*. Messrs. Bernhard Marks and J. B. McChesney were elected *Vice-Presidents*. Mr. John Swett, *Cor. Sec.* Mr. S. A. White, *Rec. Sec.*; and James Denman, *Treas.*

Section second of the Constitution was so amended that "The State Superintendent, all holders of Life Diplomas, or State Educational Diplomas, shall be eligible to membership on the recommendation of the Executive Committee and the payment, in advance, of an admission fee of five dollars."

The Executive Committee were instructed to nominate six teachers, and to elect by ballot from that number, three, to constitute an Examining Committee for the current year.

The Fifth Annual Meeting of the California State Teachers' Institute was held at San Francisco, May 7th, 8th, 9th, and 10th, 1867; John Swett, State Superintendent, *President*.

Addresses were given by David H. Cochran, of the Brooklyn Polytechnic School, N. Y.; by J. W. Winans, President of the San Francisco Board of Education; by Wm. White, on "*The Duties and Responsibilities of Teachers and Parents*;" by Superintendent Swett, on "*The Educational Progress of California*;" by D. C. Stone, on "*Self-Improvement*;" and by Rev. C. G. Ames, on "*The Teacher's Motive*."

Discussions were had on "*The Self-reporting System*," and on the question, "*Shall the Institute indorse the use of Clarke's Geography?*" on the question of substituting Cutler's Physiology for that of Hooker; also, on the "*Best method of acquiring the English Language*;" "*The use and abuse of Medals in Schools*;" "*The best methods of keeping records of Recitations*;" and "*Detention of Pupils after School*."

An Essay was read by Ralph Keeler on "*The Oldest Scholar*," and several Teaching Exercises were had during the sessions of the Institute.

Among the interesting incidents of the meeting was the presentation of an elegant Waltham watch to the State Superintendent, Mr. Swett. The number in attendance was 568.

Officers elected:—John Swett, *President*. J. B. McChesney and George Barstow, *Secretaries*; with a list of *Vice-Presidents* and several *Committees*.

SIXTH ANNUAL MEETING.—At San Francisco, June 16th, 17th, 18th, and 19th, 1868. Called to order by the Hon. O. P. Fitzgerald, State Superintendent, as *President*.

Addresses were given by Col. T. H. Holt; by E. J. Schellhouse, on "*Grammar*;" by Hon. O. P. Fitzgerald, on "*The Condition of Education in the State*;" by T. C. Leonard, on "*Mathematics*;" by Mr. Carlton, on "*Normal Training*;" by Prof. Knowlton, on "*Elocution*;" by Prof. A. L. Fitzgerald, on the "*Inevitable Grammar*;" on "*Language*," by Mr. Thomas Nicholson; and on many appropriate matters relating to the work of Teachers, by Dr. Henry Gibbons, Sen.

Discussions were had on a number of resolutions which were presented, and very generally participated in, among which resolutions were the following:—That one important cause of the want of success in our schools is the frequent change of teachers; that

the interests of State and County Institutes are better subserved by short and free discussions on the practical duties of the school-rooms, than by lengthy *lectures*; that it is the sense of this Institute that each County employ a Music Teacher, to divide time among the several schools; that as there is no national system of education in the United States, it is incumbent upon the Legislature of this State to provide, by legal enactments, for the common school education of every child in the State, between the ages of six and twenty-one years.

Several County Superintendents presented short verbal reports:—Messrs. Preston, of Nevada; Gillespie, of Napa; Denman, of San Francisco; Braly, of Santa Clara; Mackall, of Lake; Thurber, of Contra Costa; Fuller, of Alameda; Simonton, of Solano; and Dr. Trafton, of Sacramento, each giving an account of the condition and wants of the schools in their respective localities.

SEVENTH ANNUAL MEETING.—At San Francisco, May 4th, 5th, 6th, and 7th, 1869. Rev. O. P. Fitzgerald, State Superintendent of Public Instruction, *President*.

After the Annual Address, by the State Superintendent, papers were read, on "*Arithmetic*," by Prof. Swett; on "*Mental Arithmetic*," by Prof. Anderson; on "*The Bearing of Recent Discoveries in Science upon the Nebular System*," by Prof. John LeConte, of the University of California; on "*English Grammar*," by Mr. Randall, of Stockton; on "*True Education*," by Mr. Simonton, County Superintendent of Solano County; on "*Teaching English Grammar*," by Dr. Lucky; "*Education*," by Wm. H. Rhodes; and "*Greeting*," by Miss Laura T. Fowler, on referring to the celebration expected on the next day, in connection with the laying of the last rail for the Pacific Railroad, and applied to the lady teachers of the East.

Discussions followed on most of the topics presented, particularly upon the text-books recommended for use in the schools of California by the Committee on Text-Books. By invitation, Prof. Wilkinson, with a class from the Deaf, Dumb and Blind Institute, occupied a short time with an interesting exhibition, for which the thanks of the Institute were tendered to him. Several recitations of poems or declamations were given by members of the Institute, and the exercises closed by singing the Doxology.

SEVENTEENTH ANNUAL MEETING.—At Willimantic. Oct. 26th and 27th, 1865. J. N. Bartlett, *President*.

Addresses were delivered by Prof. T. H. Thacher, Pres. of the State Board of Education, on "*The Importance of our Common Schools*;" by Prof. D. C. Gilman, Secretary of the State Board, on "*Horace Mann, and the Lessons of his Life*;" by Dr. H. N. Knight, Superintendent of Schools for Imbeciles, "*The Physical Care we owe our Pupils*;" and by J. W. Allen, Principal of Central District School, Norwich, on "*National Education*."

Discussions were had on the topics presented by the lecturers, and upon the subject of "*Abolishing the District System*;" and "*The Duties of Parents to Common Schools*."

Appropriate resolutions were adopted unanimously, with reference to the services of Charles Northend, Esq., as a Conductor of Teachers' Institutes, and Editor of the *Conn. Common School Journal*, and "as the earnest advocate and unwearied supporter of the cause of a sound and liberal school system."

Officers elected:—J. N. Bartlett, *President*. One *Vice-President* from each County. L. L. Camp, *Rec. Sec.* H. E. Sawyer, *Cor. Sec.* J. G. Lewis, *Treas.*

EIGHTEENTH ANNUAL MEETING.—At Middletown, October 25th and 26th, 1866. Addresses were delivered by Prof. Moses T. Brown, of Tufts College, Mass., on "*Reading as a Fine Art*;" Rev. Mr. Scudder, on "*Enthusiasm in Teaching*." The subjects discussed were, "*A Course of Study for Graded Schools*;" "*The Marking System*;" "*Moral Training*;" and "*Grading Schools*."

The officers elected for the ensuing year were:—F. F. Barrows, Hartford, *Pres.* Homer B. Sprague, New Britain; A. Parish, New Haven; E. B. Jennings, New London; N. H. Whittemore, Norwich; D. P. Corbin, Willimantic; A. N. Lewis, Woodbury; H. E. Sawyer, Middletown; and L. M. Turner, *Vice-Pres'ts.* L. G. Lewis, New Haven, *Treasurer*; L. L. Camp, New Haven, *Rec. Sec.* C. Davis, Norwich, *Cor. Sec.*

NINETEENTH ANNUAL MEETING.—At Meriden, Nov. 8th and 9th, 1867. *President*, F. F. Barrows.

Addresses were given by Rev. Mr. Pettie, "*Welcome*;" by the President, "*Response to the Welcome*;" by Rev. Theodore Dwight Woolsey, D. D., LL. D., Pres. of Yale College, on "*Moral and Political Instruction in Public Schools*;" by Rev. B. G. Northrop, Sec. of the State Board of Education, on "*Truancy—its evils—its causes—its remedy*;" by Prof. Thatcher, of Yale College, on "*The*

Necessity of Constant Vigilance in sustaining the Cause of Education in the State;" by Prof. D. C. Gilman, on the need of awakening the people of the State to an interest in the principles of education; by Rev. J. Cummings, D. D., Pres. of Wesleyan University, Rev. Mr. Farnsworth, Rev. Mr. Tower, Dr. Wilson, Ariel Parish, and others, on the general subject of education.

Discussions were had on "*School Discipline*;" "*The necessity of Sustaining one or more Normal Schools in the State*;" and "*Our Common Schools*."

Mrs. Warren, of Philadelphia, added to the interest of the meetings by select readings.

Officers elected:—F. F. Barrows, *President*. Seven *Vice-Presidents*. John H. Peck, *Treas.* L. L. Camp, *Rec. Sec.* W. H. Hyde, *Cor. Sec.*

TWENTIETH ANNUAL MEETING.—At Winsted, Oct. 15th and 16th, 1868. Rev. F. F. Barrows, *President*.

Addresses were delivered by Rev. J. Cummings, D. D., Pres. of Wesleyan University, on "*Harmonious or Symmetrical Education*;" by James K. Lombard, on "*School Management*;" by Rev. Dr. Bodwell, of Conn. Theo. Seminary, on "*Elocution*."

Discussions were had on "*Practical Studies*;" "*Object-Teaching*;" "*Methods of Teaching*;" "*Analysis in Arithmetic*;" and on the questions, "*Ought History to be learned verbatim?*" and "*What Motives shall we chiefly set before our Pupils as Incentives to Study?*"

Essays were read, by H. C. Davis, on "*Oral Instruction in Schools*," and by Mr. A. House, on "*Graded Schools*." Reports on the condition of education in different parts of the State, were made by Messrs. S. C. Johnson, Morrill, Lombard, Adams, and Harris, and Hon. H. M. Cleveland.

Resolutions expressing the pleasure of the Association at the recent action of the Legislature in making the common schools *Free Schools*; and the high appreciation of the Association of the services of Rev. B. G. Northrop, Sec. of the Board of Education, were adopted. Also, "That we take new courage in the strong assurance we now have, that our legislators, without regard to political views and proclivities, have given to the cause an impulse which can not fail to place Connecticut among the leading States in educational progress."

Officers elected:—L. L. Camp, *Pres.* One *Vice-President* for each County. Henry C. Davis, *Rec. Sec.* E. B. Jennings, *Cor. Sec.*; and J. H. Peck, *Treas.*

TWELFTH ANNUAL MEETING.—At Joliet, December 26th, 27th, and 28th, 1865.

Addresses were delivered by the President, S. M. Elter, of Kewanee—" *Inaugural* ;" by A. A. Griffith, on " *Elocution* ;" Prof. Edward Cleveland, on " *The Requisites of a Good Teacher* ;" Prof. Mark Bailey, on " *Good Reading ; how to teach it* ;" Albert Stetson, " *Professional Enthusiasm* ;" J. L. Pickard, " *Bird's-eye Views* ;" Hon. Newton Bateman, " *Township System of Schools* ;" Prof. Young, " *Relation of the District School to the College*."

Discussions were had on the following subjects:—" *Would it be advisable to establish a system of State Institutes by law?*" " *Is any real or practical benefit derived from the study of English Grammar as it is usually taught in our Schools?*" " *Should the text-books in our Common Schools be prescribed by central authority?*"

Essays were read, on " *School Gymnastics*," by E. P. Burlingham, of Geneseo ; " *The General and the Special Scholar*," by W. L. Pillsbury ; and " *The Teachers' Association and its Mission*," by A. M. Gow.

Hon. Newton Bateman, Superintendent of Public Instruction, offered a resolution, which was adopted, in favor of the establishment of a National Bureau of Education, as a coördinate branch of the government.

Officers elected:—S. H. White, *President*. J. H. Blodgett, Morris Savage, Prof. Young, A. H. Veeder, John Higby, T. J. Burrill, W. M. Baker, H. L. Boltwood, and Wm. Florin, *Vice-Presidents*. Albert Stetson, *Secretary*. D. N. Otis, *Treasurer*.

THIRTEENTH ANNUAL MEETING.—At Jacksonville, December 25th, 26th, and 27th, 1866.

Addresses were delivered by the President, S. H. White, of Chicago—" *Inaugural* ;" Hon. Horace Greeley, on " *School Government* ;" Capt. Jas. H. Blodgett, on " *The Causes of Imperfect Scholarship in American Scholars* ;" G. W. Perkins, on " *Reform Schools* ;" Wm. M. Baker, on " *Professional Work* ;" Hon. Newton Bateman, on " *The Relation of Colleges to Public Schools* ;" Rev. F. H. Wines, on " *The Methods of Teaching History*."

Discussions were had on the following subjects:—" *Should moral and religious instruction be given in Common Schools?*" " *Should attendance at School be made compulsory by law, and is it expedient that a law to that effect be enacted at the present time?*" " *Should the Free High School and University form a part of the system of Common Schools?*"

Essays were read by Miss Edith T. Johnson, on "*General Principles in Education*;" J. P. Slade, on "*The Importance of Sustaining Educational Journals*;" S. M. Heslet, on "*The Educator*;" and by Miss McCambridge, on "*The Wealth of a Nation consists in its Men.*"

Officers elected:—A. M. Brooks, *President*. E. L. Wells, *Sec'y*. E. A. Gastman, *Treasurer*; and thirteen *Vice-Presidents*.

FOURTEENTH ANNUAL MEETING.—At Galesburg, Dec. 24th, 25th, and 26th, 1867. A. M. Brooks, *President*.

Addresses were given by the President, on "*The Progress and Condition of Education*;" by Prof. J. C. Hutchinson, a poem on "*The School-house*;" by Pres. R. Edwards, on "*Educational Needs of the Times*;" by Prof. Sanborn Tenney, on "*Corals, Coral Reefs, and Coral Islands*;" and also on "*Physical Geography*;" also on "*Zoölogy*;" by Hon. J. M. Gregory, LL. D., on "*The Right and Need of the Race to Universal Education.*"

Papers were read on "*The proper methods of imparting Moral Instruction in Schools*," by Dr. Willard; on "*The Grading practicable in Country Schools*," by Albert Ethridge; and discussions were had upon the topics of the essays, as well as upon the questions, "*Should attendance at School be made compulsory by law?*" and "*The Coeducation of the Sexes.*"

The following resolution, reported by the Committee, was unanimously adopted:

Resolved, That, in the opinion of this Association, there is no conflict of interests between the Common Schools and the Colleges and higher Seminaries of learning, but that each is necessary to the other, and that the highest prosperity of the one demands the highest efficiency and success of the other.

Officers elected:—Hon. J. M. Gregory, LL. D., *President*. E. C. Smith, *Rec. Sec.* W. B. Powell, *Treasurer*; and the usual number of *Vice-Presidents*, and an Executive Committee.

FIFTEENTH ANNUAL MEETING.—At Peoria, Dec. 29th, 30th, and 31st, 1868.

Addresses were delivered by the President, Dr. Gregory, on "*Culture*;" Prof. J. D. Butler, on "*Gems from Three Continents*;" Dr. George Vasey, on "*The Natural History of the Rocky Mountains*," also, on "*The Teaching of Natural History in our Schools*;" and another lecture by Prof. Butler, on "*The use and importance of a Common Place-Book.*"

A new feature at this meeting of the Association, was that of dividing it into Sections, called High-School, Grammar-School, and Primary-School Sections, in each of which appropriate papers were

read, as follows:—" *Course of Study for a High School*," by Prof. Pillsbury; " *What is the true relation of the High School to the School System of the State?*" by Professor Shurtleff; " *A Course of Study for a Grammar School*," by J. S. Baker; " *What can be done to increase the efficiency of the District Schools?*" by Rev. Thos. Hynes; " *Method of teaching Oral Geography*," by Miss Lizzie Leeper; " *The Idea of a Graded School*," by W. A. Jones; " *The True Ends of Life*," by Miss Esther Sprague; " *County Normal Schools*," by N. E. Worthington; " *The Teacher's Aim*," by Mary R. Gorton.

Prof. Shurtleff, of Chicago, offered the following resolution, which was adopted:

That we earnestly favor the adoption of the Township System of Schools, as recommended by the Hon. Newton Bateman, in place of the present District System.

The following resolutions, reported by the Committee on Resolutions, were adopted:

Resolved, That the following changes in the School Law recommended in the communication of the Hon. Newton Bateman, Superintendent of Public Instruction, to this body, are heartily approved, and the same are respectfully urged upon the attention of the next General Assembly. [These changes are as follows:—That a permissive or enabling act be passed, authorizing Boards of Supervisors of County Courts to appropriate funds or levy taxes to establish and maintain County Normal Schools; that Directors be authorized to pay teachers monthly: that the word "white" be stricken from the School Law.]

Resolved, That it is the deliberate opinion of this Association that the establishment of the National Department of Education was a wise and necessary measure of public policy, and that the premature abrogation of the said department, after the short and wholly insufficient trial of its power and usefulness, must and will be greatly deplored by every intelligent friend of education.

Resolved, That copies of the foregoing resolution be sent to our Senators and Representatives in Congress, with our earnest and respectful request that they use their influence to secure the renewal of the appropriation for said department.

Officers elected:—George Howland, *President*. M. R. Kelley, *Secretary*. H. C. DeMotte, *Treas.*

SOUTHERN ILLINOIS EDUCATIONAL ASSOCIATION.

A LARGE Convention of teachers from the Southern part of the State of Illinois, met at Centralia, Sept. 1, 1868, and continued in session three days, with the following officers:—Joel G. Morgan, *President*; James P. Slade, *Sec.*; James R. Abernathy, *Ass't Sec.*; J. C. Tully, and W. P. Sloan, *Vice-Presidents*; J. W. Blair, *Treas.*; Jas. S. Stevenson, *Rec. Sec.*

The Constitution adopted is as follows:

CONSTITUTION.

ARTICLE I.—This Association shall be called the Southern Illinois Educational Association.

II.—The object of this Association shall be to unite the teachers, school officers and friends of education in Southern Illinois in the work of elevating the character and increasing the efficiency of our schools.

III.—This Association shall meet at least once a year, at such time and place as the Association shall, either by direct vote, or by its Executive Committee, appoint.

IV.—Gentlemen may become members of this Association by signing the Constitution and paying one dollar to the Treasurer. Ladies may become members by signing the Constitution.

V.—The officers shall consist of a President, six Vice-Presidents, a Secretary, a Treasurer, and an Executive Committee of three persons, who shall be elected by ballot, and shall hold their respective offices for the term of one year and until successors are elected.

VI.—This Constitution may be amended at any regular meeting of the Association, by a two-thirds vote of the members present.

The officers of the Association for the year 1868–69, were Robert Allen, *President*; J. Hurty, W. H. V. Raymond, D. G. Young, J. A. Kennedy, J. C. Scott, and J. G. Morgan, *Vice-Presidents*. James P. Slade, *Sec.* James W. Blair, *Treas.*

Addresses were given during the sessions of the Association, as follows:—"Welcome," by Rev. J. S. Mahan; "*The necessity of the establishment of a Normal School in Southern Illinois*;" by Hon. Newton Bateman; "*Industrial Education*," by Dr. J. M. Gregory; "*The Art of Reading*," by Richard Edwards; "*Natural History*," by Prof. Sanborn Tenney; "*Force, the Teacher's great want*," by Dr. Robert Allen; "*Geology*," by Prof. Sanborn Tenney.

Discussions were had on the resolution that "*The legal eligibility to the County Superintendency should embrace the holding of a State Certificate*," "*Compulsory Education*," "*A Normal School in Southern Illinois*."

TWELFTH ANNUAL MEETING.—At Terre Haute, Dec. 26th, 27th, and 28th, 1865.

Addresses by the President, "*Inaugural*," Mr. Crosby, on "*The Practicability of cultivating Taste and the Arts in the Public Schools*," J. R. Hall, on "*The Mode of inspiring pupils with enthusiasm in Study, and Cultivating habits of Self-reliance*," Dr. Tuttle, Pres. of Wabash College, on "*The Teacher's Work, and the Relations of the Study of Nature to that Work*," T. B. Elliott, Pres. of Board of Education, Indianapolis, on "*The Live Teacher*," Richard Edwards, on "*The Teacher may be a Man*."

Discussions on "*Some of the Causes of Failure in Teaching*," "*To what extent should a Teacher use a text-book in conducting Recitations?*" and "*Some of the Duties and Privileges of Parents in reference to Schools*."

Papers were read, by Levi Wright, on "*A Course of Study for Common Schools*," W. H. DeMotte, on "*The Political and Social Relations of Teachers*," Barnabas C. Hobbs, on "*A State Reform School*," and "*Growth, in Plants and Animals*," by Dr. Fletcher.

The following preamble and resolutions were unanimously adopted:—

WHEREAS, This Association has had the honor and the pleasure of receiving from our sister State, Illinois, a cordial greeting, with the request that we coöperate with her in securing a Bureau of Education; therefore,

Resolved, That our worthy Superintendent of Instruction be authorized and directed to coöperate with the Superintendent of our sister State, in promoting this great movement.

On motion of J. M. Olcott, a Committee was appointed to prepare a memorial to Congress, on the propriety of establishing a National Bureau of Education, who subsequently reported, and the Association unanimously adopted the following resolution:—

Resolved, That the Indiana State Teachers' Association would respectfully call the attention of the Delegation of the State, in the National Congress, to a memorial to be prepared by a Committee of the National Teachers' Association, praying for the establishment of a National Bureau of Education, and would most earnestly request the aid of the honorable delegation, in securing the passage of the measure.

Signed by J. M. Olcott, B. C. Hobbs, and Mrs. E. J. Rice, as the Committee.

Hon. G. W. Hoss was chosen President for the year ensuing; other officers not reported.

THIRTEENTH ANNUAL MEETING.—At Lafayette, Dec. 26th, 27th, and 28th, 1866.

Addresses—"Inaugural," by the President, Hon. G. W. Hoss; on "*Professional Teaching*," by Hon. B. E. Rhoads; "*What are*

the Duties of Teachers in regard to the Health of their Pupils?" by Rev. C. P. Jennings, D. D.

Papers were read by E. H. Staley, on "*Educational Progress in our State—past, present, and prospective*;" by Rev. A. W. Sanford, "*County and Township Board of Education*;" Geo. P. Brown, "*Township Graded Schools, and County Normal Schools*;" Miss Eliza Fulghum, "*Geographical Teaching*;" J. M. Olcott, "*The Philosophy of the New System of Instruction*;" B. C. Hobbs, "*How can we best promote Moral Instruction?*" A. C. Shortridge, "*Duties of City School Superintendents*."

Discussions on the different papers and reports presented. Ladies' Journal read with great interest.

Officers elected:—Joseph F. Tuttle, *Pres.* A. W. Sanford, J. H. Stuart, Jesse Brown, Geo. P. Brown, E. H. Staley, Miss H. Tobey, and Miss Olivia Neily, *Vice-Presidents*. Miss Eliza B. Fulghum, *Sec.* J. T. Merrill, *Treas.*

FOURTEENTH ANNUAL MEETING.—At New Albany, Dec. 25th, 26th, and 27th, 1867.

Addresses—"Inaugural," by the President, Rev. Joseph F. Tuttle, D. D.; "*The Geology of Indiana*," by Prof. Richard Owen; "*Coral*," by Prof. Sanborn Tenney; "*Business Integrity; how best promoted by Education*," by W. H. Wiley; "*Natural History*," by Prof. Tenney.

Papers were read on "*The Culture of Literature in the Teacher's Profession*," by Robert G. McNiece; "*Higher Culture*," by Daniel Hough; "*County Superintendency*," by S. P. Thompson; "*Intuitive Instruction*," by Prof. Ira W. Allen; "*Philosophy of Composition*," by Prof. Noble Butler.

Discussions on, "*At what Stage of Advancement should the Study of English Grammar be commenced?*" "*The Relation of the Common Schools to the State University*;" and upon several of the essays and topics presented. The Ladies' Journal was read by some of the ladies of the Association.

Officers elected:—A. C. Shortridge, *Pres.* O. V. Tousley, R. G. McNiece, J. H. Smart, Miss M. A. Rouse, Miss Mary E. Perry, Mrs. Geo. P. Brown, Miss Zella Reid, *Vice-Presidents*. B. F. Brewington, *Sec.* Thomas Charles, *Sec.*

FIFTEENTH ANNUAL MEETING.—At Richmond, Dec. 29th, 30th, and 31st, 1868. President Nutt, of the State University, in the absence of the President of the Association, called the meeting to order.

Addresses were given by Judge Yaryan, "*Welcome*;" by Dr. R. T. Brown, "*Response*;" by A. C. Shortridge, Esq., President-elect of the Association, "*Inaugural*;" by Mr. Townsend, of New York, on "*Teaching Civil Government*;" W. H. Venable, of Cincinnati, on "*Practical Education*;" by Prof. J. Tingley, on "*Teaching Natural Science in Common Schools*;" by Prof. Henkle, of Ohio, on "*Mind and Matter*;" by Superintendent Hobbs, on "*The Prominent Educators in the West*;" by Hon. E. E. White, Commissioner of Schools in Ohio, and by Prof. W. D. Henkle, each of whom spoke of the satisfaction they experienced in meeting the teachers of Indiana and witnessing the encouraging progress they were making.

Papers were presented, upon which discussions followed, by H. S. McRae, on "*Compensation of Teachers*;" by W. A. Bell, on "*Course of Study for High Schools*;" by Thomas Charles, on "*Amendments to School Law*;" by C. W. Hodgkin, on "*Composition Writing*;" by Rev. A. M. Gaw, on "*The Duty of the State to Educate all her Children*;" by Prof. G. B. Loomis, on "*Music in Common Schools*;" and by J. M. Olcott, on "*The Relation of Colleges to Public Schools*."

Resolutions were adopted in favor of recognizing the constitutional rights of all citizens, without regard to color, and providing equal educational privileges for all; also, reciprocating the action of the State Temperance Alliance, and expressing the opinion that the Public Schools should give such instruction concerning the use of alcohol as a beverage, as should tend to secure total abstinence from its use; and that the use of tobacco should be prohibited in and about the school-house, and that every teacher should, by precept and example, dissuade others "from a habit so useless, disgusting, and injurious to both body and mind."

The following resolution, introduced by Mr. Crosby, of Ohio, was adopted:

Resolved, That this Association does not abate in the least its interest in a National Department of Education, designed to represent the chief interests of the State; but on the contrary declares the minds of the educators of Indiana to be—that in justice to the cause there should be at Washington a Secretary of Public Instruction, invested with all the powers of a cabinet officer.

Officers elected:—Joseph Tingley, *President*. Five male and two female *Vice-Presidents*. Miss Eliza C. Cannell, *Secretary*, and Thomas Charles, *Treasurer*; with an Executive Committee of seven, five male and two female.

FIRST MEETING OF THE MAINE EDUCATIONAL ASSOCIATION.—At Lewiston, Nov. 25th and 26th, 1867.

There was no meeting of the Maine State Teachers' Association during 1865 or 1866, the last meeting having been held at Skowhegan in November, 1864. The Association formed at Lewiston was essentially a new one, under the name of THE MAINE EDUCATIONAL ASSOCIATION and having a different basis of membership allowing "any person interested in the advancement of the cause of education" to become a member by the payment of one dollar annually—ladies becoming members without payment.

Remarks were made upon the method of organization, by Rev. Mr. Balkam of Lewiston, Messrs. Hanson of Waterville, Stetson of Auburn, Rev. Dr. Ballard of Brunswick, and others; and the result was the appointment of a Committee to nominate officers for a permanent organization, who reported as follows:

President—Rev. E. Ballard, D. D., Brunswick. *Vice-President*—Geo. M. Gage, Farmington. *Secretary and Treasurer*—C. B. Stetson, of Auburn. *Executive Committee*—A. P. Stone of Portland; J. S. Barrel, Lewiston; M. Lyford, Waterville; J. B. Sewall, Brunswick; and J. Y. Stanton, Lewiston.

A Constitution and By-Laws were adopted for the new organization, and a Committee was appointed to solicit from the Legislature aid in defraying the expenses of the Association.

Addresses were delivered by Gen. J. C. Caldwell, on "*Common Schools*;" C. B. Stetson, on "*Common School Education—its Philosophy and Methods*;" A. P. Stone, on "*How shall I successfully discharge my duties as a Teacher?*" and by D. B. Hagar, of the Salem Normal School, Mass., on "*Ventilation*," and on "*Memorizing*."

Discussions were had on "*Arithmetic*" and "*School Supervision*."

SECOND ANNUAL MEETING.—At Augusta, Nov. 23, 24, and 25, 1868.

Addresses were delivered—"Welcome," by Hon. Mr. Williams, Mayor of the city; "*Inaugural*," by President Ballard; on "*Educational Progress at the West*," by Hon. Warren Johnson, State Superintendent of Public Schools; "*Defects in the Present Educational System*," by C. C. Rounds; "*The Necessity of Teaching Morality and Religion in our Schools*," by J. S. Sayward; "*Geography*," by G. H. Tucker of Boston; "*History in Common Schools*," by A. P. Stone; Hon. W. Johnson, on "*Our Common School System*;" Geo. A. Wolton, Mass., on "*Method in Education*;" C. B. Stetson, on "*Reading*."

Officers elected:—A. P. Stone, *Pres.* J. H. Hanson, *Vice-Pres.* C. B. Stetson, *Sec. and Treas.*; and an Executive Committee.

FOURTH ANNUAL MEETING.—At Lawrence, July 3d, 4th, and 5th, 1866. *President*, Orlando Sawyer.

Addresses were given by the President, on "*Contrast between Conservatism and Progress*;" by Rev. R. Cordley, "*Welcome*;" Col. H. D. MacKay, "*Annual Address*;" Rt. Rev. Bishop T. H. Vail, "*The Characteristics of the Times in which we live*;" Judge Brewer, a Poem; Major J. B. Merwin, "*The Elements of Power*."

Essays were read, on "*What we ought to teach*," by Prof. H. B. Norton; "*Physical Culture*," by Prof. D. L. Bradford; "*The Practical Elements of American Character*," by Prof. D. H. Robertson; "*Education regarded in the light of the Future*," by Miss Iserman

Discussions on the papers and reports presented.

The following resolutions were reported and adopted:

Resolved, That we, the members of the Kansas Teachers' Association, warmly sympathizing in feeling, most heartily indorse the action of the last National Teachers' Association held at Harrisburg, Penn., in developing the idea of a National Educational Bureau and bringing the subject before the Congress of the United States.

Resolved, That we fully indorse the bill presented in the House of Representatives by Gen. Garfield of Ohio, creating a Department of Education, and earnestly urge its speedy passage.

Officers elected:—Rev. P. McVicar, *President*. The County Superintendents, *Vice-Presidents*. S. B. Kellogg, *Rec. Sec.* J. S. Brown, *Cor. Sec.* Miss Carrie Collins, *Treas.*

FIFTH ANNUAL MEETING.—At Topeka, July 2d, 3d, and 4th, 1867. *President*, Hon. P. McVicar.

Addresses were given by the President, on "*The Aim and Scope of the Education of the People*;" by Prof. B. F. Mudge, of the Agricultural College, on "*The claims of Natural Sciences in a system of popular instruction*;" by Hon. James Rogers, of Burlingame, on the question, "*Ought the State to compel the education of youth within her limits?*" by Mr. D. Donovan, on "*The best methods of teaching Reading*;" by Pres. J. W. Horner, of Baker University, the annual address, on "*The True Teacher*."

Discussions were had on the question whether children should be admitted to public schools before they are eight years of age, or required to attend more than one session a day before the age of ten; also, on most of the principal topics presented in the addresses or essays.

Essays were read by Prof. Cox, on "*The best methods of teaching Grammar*;" by L. B. Kellogg, on "*The Metric System*;" by Miss M. J. Watson, on "*The Christian Statesman*;" by Mrs. M. G. Preston, on "*The Necessary Qualifications of a Teacher*;" and by Prof. J. E. Platt, on "*Music as a branch of Common School study*."

Reports were read from the University, by Prof. E. J. Rice; from the Agricultural College, by the President, Rev. J. Denison; and from the Normal School, by the Principal, L. B. Kellogg.

Among the resolutions adopted was one, that an outline of the History and Constitution of the United States should be included in the course of study in public schools, and that teachers should be examined on those subjects.

The officers elected were:—For *President*, B. F. Mudge. *Vice-Presidents*, the County Superintendents. *Cor. Sec.*, D. L. Bradford. *Treasurer*, H. D. McCarty; and an Executive Committee of five members.

SIXTH ANNUAL MEETING.—At Emporia, June 30th, July 1st and 2d, 1868. Prof. McCartney, *Vice-President*, in the chair.

Addresses were given by President Edwards, of the Illinois Normal University, on "*The Parties to the Educational Enterprise*;" by Gen. Frazer, on "*The Three Factors of Life*;" by Judge Brewer, "*Should the Teacher engage in Politics; and should he teach it?*"

Discussions, "*How to conduct Teachers' Institutes?*" "*County Institutes should be maintained from the Common School Fund*;" "*Use of the Bible in the School Room*;" and on the papers presented or topics of the several addresses.

Essays were read by Miss E. D. Copley, on "*Slates for Primary Schools*;" by Miss Mary Kipp, on "*The March of Intellect*;" by Miss Morris, on "*The Better Way*;" and by Prof. Snow, on "*The best methods of teaching the Natural Sciences in Common Schools*."

Officers elected:—Judge D. J. Brewer, *President*. The County Superintendents, *Vice-Presidents*. Mrs. J. H. Gorham, *Rec. Sec.* Pres. Denison, *Cor. Sec.* Miss E. D. Copley, *Treas.*

Among the resolutions adopted, one declared that it is unwise to compel children under eight years of age to remain in the school-room over four hours a day; another, that the 16th and 36th sections are and of right should be set apart for educational purposes, and this right should be protected in all treaties with Indian Tribes for their reservations; another, that the people are competent to decide what they are able to do in the support of education, and that all laws restricting the amount of tax for school purposes are uncalled for and should be repealed; and another, that the phonetic system, whereby each separate and distinct sound of the English language is represented by a distinct and separate letter, and never by any other, is the only true and proper system of writing and printing the English language.

TWENTY-FIRST ANNUAL MEETING.—At Boston, Oct. 12th, 13th, and 14th, 1865. Hon. John D. Philbrick, *President*. An address of welcome was extended to the Association by His Honor, Mayor Lincoln.

Besides the annual address, by the President, addresses or lectures were given by Rev. Charles Brooks, Medford, on "*A National System of Education*;" by Prof. Wm. B. Rogers, President of the Massachusetts Institute of Technology, on "*Methods of Teaching*;" by Rev. James Freeman Clarke, D. D., on "*The Teacher who Leads his Flock, and the Teacher who Drives it*;" by H. H. Lincoln, Esq., Boston, on "*Spelling—its Irregularities, and the Philosophical Remedy*;" by Prof. W. P. Atkinson, Cambridge, on "*The Short-Time System*;" by Harris R. Greene, Esq., Worcester, on "*The Best Method of Teaching the Syntax of the Latin and Greek Languages*."

In connection with the topic presented by Rev. Charles Brooks, a Committee, consisting of Messrs. Hagar, Northrop, Parish, Greene, and Mason, was appointed to provide for a memorial to Congress on the subject, and who subsequently reported the following:—

Resolved, That a Committee of five be appointed to memorialize the Congress of the United States in favor of organizing a National Bureau of Education, which, without interfering with State educational systems, may hold the same relation to them which the National Department of Agriculture holds to the State Societies, and be organized for the purpose of promoting the cause of free schools and free education in every State of the Union, without regard to location, condition, sex, or color.

The resolution was adopted, and Messrs. Chase of Lowell, Bates of Boston, Hammond of Monson, Batchelder of Lynn, and Hagar of Salem, were appointed.

Appropriate resolutions, with reference to the recent decease of James S. Eaton, late Principal of the English Department of Phillips Academy, Andover, were introduced by Rev. B. G. Northrop, and unanimously adopted.

Many distinguished gentlemen from abroad attended this meeting: M. Kapnist of Russia; M. De Mongue of the French Legation; Marquis de Chamboun, introduced as a grandson of Lafayette, and His Excellency, D. F. Sarmiento, of the Argentine Republic.

This was the largest meeting ever held by the Association, numbering more than two thousand. Hon. J. D. Philbrick was reelected *President*. McLaurin F. Cooke, Boston, *Recording Sec.* H. H. Kimball, Boston, *Cor. Sec.* James A. Page, Boston, *Treas.*

TWENTY-SECOND ANNUAL MEETING.—At Boston, Oct. 11th, 12th, and 13th, 1866. Hon. John D. Philbrick, *President*.

Lectures and addresses were given, and papers were presented as

follows:—"Primary Schools," by Miss Frances H. Turner, East Boston; "To what Extent shall School Lessons be Memorized?" by D. B. Hagar, Salem; "Rhetorical Exercises in School," by Mr. J. F. Claflin, Worcester; "Right Methods in the Study of the Classics," by Mr. Perkins, Boston; "The Relations of High Schools to Colleges," by Mr. Elbridge Smith, Dorchester; an address by Dr. A. A. Miner; "The Study of the Classic Languages," by Wm. R. Dimock, Boston; "Teaching Composition in Schools," by L. W. Russell, Watertown; and brief addresses by Mr. Fisher, President of the Board of Education, Cincinnati, Ohio, and J. W. Bulkley, Esq., Superintendent of Public Schools, Brooklyn, N. Y.

This meeting was largely attended, and the officers for the year were:—C. C. Chase, Lowell, *Pres.*; McLaurin Cooke, *Rec. Sec.*; R. C. Metcalf, Boston, *Cor. Sec.*; James A. Page, Boston, *Treas.*

TWENTY-THIRD ANNUAL MEETING.—At Springfield, Oct. 17th, 18th, and 19th, 1867. C. C. Chase, *President*.

Lectures, addresses and papers were:—"Welcome," by Hon. A. D. Briggs, Mayor of the city; "Response," by the President; "The True Basis of Christian Culture," by Prof. Seelye, Amherst; "How can we Popularize our High Schools, and Supply them with more and better Material?" by Rev. H. G. Harrington, Superintendent of Schools, New Bedford; "Method in Teaching and Study," by J. W. Dickinson, Principal of the Westfield Normal School; "Declamation," by Prof. Monroe; "Bible Lands," by Rev. Wm. Gage.

There was an animated discussion on the subject of Mr. Harrington's essay, in which Messrs. Hammond, Hills, Brown, Hagar, Lincoln, Stebbins, Waterman, and others, participated. The exercises were greatly enlivened by Prof. Monroe on vocal culture, and with music under the direction of Mr. Barrows, Master of Union Street School, Springfield.

Mr. C. C. Chase was reelected *President*. Geo. K. Daniel, Jr., Boston, *Rec. Sec.* Robert C. Metcalf, Boston, *Cor. Sec.* James A. Page, Boston, *Treas.*

TWENTY-FOURTH ANNUAL MEETING.—At Boston, October 15th, 16th, and 17th, 1868.

President, C. C. Chase, Lowell.

Addresses, lectures and papers were given, on "The Importance of Careful Culture, as the Basis of Popular Education," by Dr. Geo. B. Loring, Salem; "What Branches should be included in an English Course of Study?" by E. S. Frisbee, Northampton; "When and how shall the English Language be studied in the High School?" by

Elbridge Smith, Esq., Dorchester; "*The Relation of the High School to the College*," by Samuel H. Taylor, LL. D.; "*Physical Culture in Schools*," by Prof. L. B. Monroe; "*Geography—What it is, and the method of teaching it*," by Mrs. Mary Howe Smith, of Oswego, N. Y.; "*Grammar—What shall be taught, and how?*" by J. G. Scott, Westfield; "*The Necessity and Advantage of Oral Instruction*," by Rev. H. F. Harrington, New Bedford; "*The Influence of Primary Schools on Educational Reforms*," by Miss J. H. Stickney, Superintendent of the Boston Training School; "*Orthography*," by Edwin Leigh, illustrated by the performances of a class of little girls in spelling and pronouncing words, represented by a system of phonics adopted by him, and by the use of which he claimed that children could be taught to read and spell in half the time usually required; "*Methods of Primary Instruction*," by Miss D. A. Lathrop, of the Worcester Training School; "*Primary School Government and General Management*," by Hon. J. D. Philbrick; "*Kindergartens*," by Miss Elizabeth Peabody; "*Labor and Wait*," a metrical essay, by Miss E. G. Cogswell, read by Miss Anna Whitmore—both primary school teachers—of Salem; "*Work in the School Room*," by Mr. Greenough, of Westfield; "*Mathematical Studies in our Schools*," by Prof. Atkinson, Boston; "*Near-sightedness and other Optical defects in our School Children*," by Dr. Henry W. Williams, Boston.

By special request, Dr. Barnard, U. S. Commissioner of Education, who was present, took part in the discussion which followed the paper of Dr. Taylor, "*On the Relation of the High School to the College*," with a statement of the place held by the Gymnasias of Germany, and the Lycée of France, in relation to the Universities of those countries. They cover the ground occupied by our High Schools and Colleges together.

Most of the papers read were subsequently discussed, and various exercises illustrative of the methods recommended, were given by classes;—an object-lesson by Miss Lucy O. Fessenden, to a class of ten little children; an illustration of the method of teaching vocal music in primary schools, by L. W. Mason, Esq.; and an exhibition of note-singing by a large number of girls from the Bowdoin School, under the direction of Mr. J. B. Sharland, their teacher.

A resolution of condolence in regard to the decease of Mr. W. H. Seavy, late Head Master of the Girls' High and Normal School, of Boston, was passed. Officers chosen:—J. W. Dickinson, Westfield, *Pres.* Geo. R. Daniel, Jr., Boston, *Rec. Sec.* Assistants, S. K. Haskell, Newton; and Jas. W. Webster, East Boston. F. F. Preble, Boston, *Cor. Sec.* D. W. Jones, Boston, *Treas.*

FIFTEENTH ANNUAL MEETING.—At Kalamazoo, December 26th, 27th, and 28th, 1866. Addresses by Rev. E. O. Haven, LL. D., Pres. of Michigan University, on "*The School, the Pulpit, and the Press*;" by Prof. J. A. Banfield, of Marshall, on "*The Teachers of our Common Schools and the Facilities for their Professional Education*;" by Rev. G. B. Jocelyn, on "*Woman—her Education*."

Essays were read by Prof. Ten Brook, on "*Self-Education*;" by Prof. Olney, on "*The Influence of Mathematical Studies upon the Mind*;" by Prof. J. Bengel, on "*The Coeducation of the Sexes*."

A discussion on "*The Modifications needed in the Preparatory Course for College*," by Profs. Olney, Strong, Daniels, and Gregory.

The officers for the ensuing year were:—D. P. Mayhew, Ypsilanti, *Pres.* H. A. Latson, Grass Lake, *Cor. Sec.* C. F. R. Bellows, Decatur, *Rec. Sec.* John Goodison, Ypsilanti, *Treas.*

SIXTEENTH ANNUAL MEETING.—At Lansing, January 1st, 2d, and 3d, 1868, there being no meeting held in 1867.

Addresses were given by Prof. A. Winchell, on "*The Uses of Science*;" by Prof. Sill, on "*The Effect of Teaching upon Teachers*."

Papers were read by Prof. Hewitt, of Olivet College, entitled "*A Plea for a High Standard of Scholarship*;" by Prof. W. H. Payne, on "*Normal Instruction*;" by Prof. H. L. Wayland, on "*The Authority of the Past in Matters of Education*;" by Miss A. C. Rogers, on "*Orphans' Asylums and Freedmen's Schools*."

Discussions were had upon the subjects presented in the papers read before the Association, and on the question, "*Should the State compel the Education of her Children?*"

SEVENTEENTH ANNUAL MEETING.—At Adrian, December 29th, 30th, and 31st, 1868; President Wayland in the chair.

Addresses by Hon. O. Hosford, on "*The Relations of the Different Parts of our Educational System*;" by Prof. A. A. Griffith, of Chicago, on "*Reading and Oratory*," with illustrations.

Papers were read by Prof. L. McLouth, on "*Primary School Teaching, and how to Correct it*;" by Prof. H. L. Wayland, on "*Woman and her Destiny*;" by Miss Julia A. King, on "*Teaching outside of Books*;" by Pres. T. C. Abbott, of the Agricultural College, on the question, "*Shall we study English Grammar?*"

Discussions were had on the subjects of the several papers presented, on the question, "*What Constitutes a Practical Education?*" and on the "*Results of the County Superintendency*."

Officers elected:—*President*, T. C. Abbott. Six *Vice-Presidents*. Executive Committee of two. *Rec. Sec.*, T. R. Bellows. *Cor. Sec.*, B. R. Gass. *Treas.*, John Goodison.

SEVENTH ANNUAL MEETING.—At St. Paul, Aug. 27th, 28th, and 29th, 1867. *President*, Prof. William F. Phelps.

Addresses were given by the President—"Inaugural;" Hon. D. N. Camp, of Conn., on "*The National Department of Education*;" Prof. W. O. Hiskey, on "*The New Philosophy*;" John G. Gallup, of New York, on "*Education at the West*;" and by Hon. Ignatius Donnelly, on "*The True Policy of the National Government in respect to Education*."

Discussions, on papers and topics presented, and especially on the report of the Committee to prepare a new Constitution, which was finally adopted.

Papers were presented on "*The Dull Scholar; and the best means of dealing with him*," by F. A. Pike; "*The necessity of a well-conducted educational journal to the progress of the cause in this State*," by W. W. Payne; and "*Discipline and Scholarship*," by Mr. Hood, of Red Wing.

The following resolution was adopted:

Resolved, That this Association recognize, with hearty commendation, the distinguished services of the Hon. Ignatius Donnelly, in projecting and ably supporting in Congress, the measures which created our National Bureau of Education.

Officers elected:—Rev. Jabez Brooks, D. D., *President*. A. A. Harwood, D. P. Temple, A. S. Kissell, B. F. Jenness, and A. D. Roe, *Vice-Presidents*. Wm. W. Payne, *Sec.* Miss Mary Creek, *Treas.*; and a list of Counselors.

EIGHTH ANNUAL MEETING.—At Minneapolis, August 26th and 27th, 1868. Dr. Brooks, *President*.

Addresses were given by the President, "*The Annual Address*;" by Prof. J. M. Knight, on "*The Relations of the Teacher to his Profession*;" by Prof. A. C. Gutterson, on "*Notation of Music*;" by Prof. Purmort, on "*School Libraries*;" by Prof. Hiskey, on "*The efficiency of Teachers' Training Departments in connection with Graded Schools*;" by Mr. Barnard, on "*Compulsory Attendance at School*;" by Hon. Mark H. Dunnell, State Superintendent, on "*The Educational Agencies of Minnesota*;" by Prof. E. J. Thompson, on "*Buncombe Teaching*;" by Prof. J. L. Noyes, giving an account of the work of the Institute for the Deaf, Dumb and Blind, at Faribault, of which he is Superintendent; by Prof. Streit, of the Pennsylvania State Normal School; and by Prof. Campbell, on "*The best methods of acquiring the use of the English Language*."

Discussions were had on the topics presented in the various addresses, or essays read, participated in by most of the gentlemen present.

Discussions were had on the question, "*Is the Separation of the Sexes in our Public Schools desirable?*" and on the several topics presented during the sessions of the Association by the addresses given.

Officers elected:—Robert H. DeHart, *President*. Wm. Casterline, *Vice-President*. O. M. Putnam, *Rec. Sec.* E. A. Apgar, *Cor. Sec.*

FOURTEENTH ANNUAL MEETING.—At Plainfield, Dec. 26th and 27th, 1867, there having been no meeting of the Association in 1866, for the reason, as stated, that there was a failure to secure speakers and a suitable place for the meeting. *President*—R. H. DeHart.

A paper, on "*The Practical Workings of the New School Law*," prepared by the State Superintendent, E. A. Apgar, was read by Dr. J. S. Hart; and one by Mr. Travis, on "*The Freedom of the Teacher*," by Wm. N. Barringer, on "*The Teacher and the School*," and an address was given by the retiring President on "*Teachers' Institutes*."

Discussions were had on the subject of "County Superintendents," and other matters presented in the addresses or papers by different members. A Committee, consisting of A. F. Campbell, C. M. Harrison, Wm. N. Barringer, D. S. Wortman, and Dr. J. S. Hart was appointed, to procure an act of incorporation for the State Teachers' Association of New Jersey.

Officers elected:—Joseph E. Haynes, *Pres.* A. R. Jones and Sam'l Lockwood, *Vice-Presidents*. Wm. N. Barringer, *Treas.* O. M. Putnam, *Rec. Sec.*

FIFTEENTH ANNUAL MEETING.—At Moorestown, Dec. 29th and 30th, 1868. *President*—Joseph E. Haynes.

Addresses were delivered by Jos. E. Griffin, "*Welcome*," G. B. Sears, "*Response*," Prof. J. Dunlap, on "*Teachers' Qualifications*," Prof. E. A. Apgar, on "*The Best Methods of Teaching Geography*," Prof. J. S. Hart, on "*English Grammar*," Wm. N. Barringer, on "*Primary Instruction*," and by the retiring President, giving a brief history of the Association, and closing with encouraging remarks.

Discussions were had on the topics of several of the addresses, particularly on the subject of County Superintendents.

Sam'l Lockwood, of Menmouth County, was elected *President*.

THE TWENTIETH ANNUAL MEETING was held at Elmira, July 25th, 26th, and 27th, 1865, with the following officers:—Prof. Edward North, of Hamilton College, *Pres.* Edward Webster, Rochester; J. D. Steele, Newark; Fred. S. Jewell, Albany; and Henry Carver, Cortland, *Vice-Pres'ts.* James Cruikshank, Albany, *Cor. Sec.* Edward Danforth, Troy; Thomas Dransfield, Rochester, *Recording Sec.* Hiram L. Rockwell, Munnsville, *Treas.*

The following were the lectures and addresses delivered:—“*Address of Welcome*,” by Rev. T. K. Beecher, of Elmira; “*Inaugural Address*,” by the President; “*The Higher Education of Young Ladies*,” by Rev. A. W. Cowles, D.D., of the Elmira Female College; “*Songs of the War*,” a Poem by Francis M. Finch, Esq., of Ithaca; “*Public Education in Maryland*,” by Hon. L. Van Bokkelen, Sup't of Public Instruction in Maryland.

Reports were presented, on the part of the Standing Committees, “*On the Condition of Education*,” by Dr. J. Cruikshank; by Dr. Lambert on “*Classification in Physiology*,” by Mr. Barringer, of Troy, on “*Physical Education and Military Drill in our Schools*.” In connection with the first report, the following resolution was adopted:—

Resolved, That in the opinion of this Association, a National Bureau of Public Instruction should be established, at least in regard to the matter of educational statistics.

Reports on the condition of the schools in Pennsylvania and Maryland were made; the former by Hon. Charles R. Coburn, State Superintendent of Common Schools for Pennsylvania; and the latter by Hon. L. Van Bokkelen, Superintendent of Public Instruction in Maryland.

TWENTY-FIRST ANNUAL MEETING, at Geneva, July 31st, and Aug. 1st and 2d, 1866. Officers:—James Atwater, Lockport, *Pres.* Edward Danforth, Troy; N. F. Wright, Batavia; Jas. H. Brady, Elmira; and John French, Syracuse, *Vice Pres'ts.* James Cruikshank, LL.D., Albany, *Cor. Sec.* James M. Watson, New York, and S. A. Tozer, Geneseo, *Rec. Sec's.* James W. Barker, Buffalo, *Treas.*

The following lectures, addresses and papers were given, during the sessions of the meeting:—“*Welcome*,” by Hon. Geo. B. Dusenberre; “*Inaugural Address*,” by Pres. Atwater; “*The Great Responsibility of Teachers at the Present Crisis in the Republic*,” by Rev. William C. Wisner, D.D., of Lockport; “*Physical Geography of New York*,” by Dr. John H. French, Albany; “*The Claims of the Natural Sciences*,” by Prof. W. B. Rising, of Michigan University; also on the same subject, by Prof. S. G. Williams, of Ithaca;

"*Defects in our Common School Teachers*," by Rev. L. Merrill Miller, D. D., of Ogdensburg; "*Faith*," a poem, by Miss Mary A. Ripley, Albany; "*Establishment of an Educational Exchange*," by Dr. Cruikshank; "*The English Language and Literature as an Educational Force*," by Mr. M. P. Cavert; "*The Functions of the Normal School*," by Prof. Oliver Arey, Albany; "*The Moral Atmosphere of the School Room*," by Rev. Dr. Jackson, President of Hobart Free College.

Reports were presented, on the part of Committees, by Dr. Cruikshank on "*The Condition of Education*," by J. W. Bulkley, "*Resolutions Commemorative of the late member of the Association*, C. H. GILDERSLEEVE; and by unanimous consent resolutions were offered by Mr. Cruttenden, which were adopted, on the successful re-laying of the Atlantic Cable.

Among the resolutions presented by Dr. Cruikshank, and adopted, was the following:—

Resolved, That we approve of the establishment of a National Bureau of Education, and that a Committee of three be appointed to prepare a suitable memorial addressed to the Senators and Representatives of this State in the National Congress, urging their support of the measure.

Messrs. S. G. Williams, of Ithaca, *Pres.*, James Cruikshank, *Cor. Sec.*, and J. W. Barker, *Rec. Sec.*, were appointed as the Committee under this resolution.

Interesting discussions were had on the resolutions offered, particularly that in relation to time that primary pupils should be kept in school daily, participated in by Messrs. Townsend, Cruikshank, Barringer, and others.

THE TWENTY-SECOND ANNIVERSARY was held at Auburn, July 23d, 24th, and 25th, 1867, with the following officers:—S. G. Williams, Ithaca, *Pres.* D. S. Heffron, Utica; Wm. N. Barringer, Troy; A. G. Merwin, Port Jefferson; and D. C. Rumsey, Batavia, *Vice-Pres'ts.* James Cruikshank, LL. D., Brooklyn, *Cor. Sec.* James W. Barker, Buffalo, and J. Dorman Steele, Elmira, *Rec. Sec's.* M. P. Cavert, Albany, *Treas.*

Addressees, lectures and communications were given, as follows:—"*Welcome*," by Rev. Henry Fowler, of Auburn; "*Inaugural Address*," by the President; "*Free Tuition in Institutions of all Grades*," by Hon. G. W. Clinton, Buffalo; "*The Natural Method of acquiring Language*," by H. B. Wilbur, M. D., Syracuse; "*The Proper Limits of the Free School System*," by S. B. Howe, Catskill; "*Application of Mathematics to General Science*," by Dr. J. B. Thomson, New York; "*Normal Classes in Colleges*," by Prof. North,

Hamilton College; "*Flats and Sharps*," a poem, by J. W. Barker, Buffalo. "*Mental Discipline*," by Rev. Herrick Johnson, D. D., Pittsburg, Pa.; "*A Curriculum of Studies for Female Colleges*," by Dr. J. C. Gallup, Clinton; "*Relations of Principals and Assistants*," by Prof. S. G. Love, Jamestown; and "*Language as the best means of Discipline*," by D. H. Cruttenden, New York.

Reports were presented, from the Standing Committee "*On the Condition of Education*," by James Cruikshank, LL. D.; from a Committee appointed to consider what action should be taken by the Association in reference to the cause of education, now under review by the Constitutional Convention, recommending a sub-committee, (Dr. Woolworth and Superintendent Rice,) to represent the Association before that body; by Dr. J. B. Thomson, New York, on the disadvantages of the present system of Weights and Measures, and recommending the early introduction into schools of the Metric system. This resolution called out much opposition; but after full discussion, it was passed by a large majority.

In connection with the discussion on the paper by S. B. Howe on "The proper limits of the free school system," Prof. Davies made this striking point:—"Why take my property to educate your children? Because by law you may take and do take the bodies of my children to defend your property."

Mr. Cruikshank resigned his position as editor of the *New York Teacher*, and a Committee, with power, was appointed to provide for its publication, after the completion of the current volume, in September.

The evening session of the last day was mainly devoted to short addresses by Hon. Victor M. Rice, Hon. Christopher Morgan, Hon. Mr. T. M. Pomeroy, of Auburn, and Gov. Fenton.

TWENTY-THIRD ANNIVERSARY, at Oswego, July 21st, 22d, and 23d, 1868. J. W. Barker, Buffalo, *Pres.* Addresses were delivered by Rev. Jos. Beecher, of Owego, "*Welcome*," the President, "*Inaugural*," T. S. Lambert, "*Physiology as a Branch of Popular Education*," Rev. A. T. Pierson, "*An Original Poem*," Hon. Richard Edwards, LL. D.—subject not reported; Miss Susan B. Anthony, "*The Rights of Women*."

Discussions on most of the reports presented, which were "*On the Condition of Education*," by M. P. Cavert; "*Compulsory Education*," by A. J. Lang; "*Educational Wants and Work*," by S. D. Barr; "*Language not Grammar*," by Adolph Werner; Class Recitation, by Wm. L. French; "*Culture for Women*," by James

Johonnot; "*Defects of a Finished Education*," by G. C. Waterman; "*Text-Books*," by M. M. Merrill; "*Educational Drifting*," by G. H. Stowitz; "*Penmanship*," by B. Harrison, Mass.; "*Relation of Academies to Common Schools*," by S. G. Love; "*How to Teach History*," by John J. Anderson; "*Teaching Elementary Reading*," by E. Danforth. An Essay on "*Noble Aesthetics for all Children*," was read by Mrs. S. D. Barr.

On motion of J. Johonnot, the following resolution was adopted :

Resolved, That a Committee of three be appointed to prepare a Memorial to the next Legislature, asking for such changes in the law as to allow women to hold school offices.

Appropriate resolutions were also adopted, as reported by J. W. Bulkley, Chairman of the Committee for that purpose, with reference to the recent decease of Rev. Chester Dewey, D. D., LL. D.

On the last day of the meeting, Mr. Valentine, of Brooklyn, criticised the course of proceedings during this meeting, claiming that the Association had ceased to be a Teachers' Association; but that the meetings were educational fairs, conducted by superintendents, commissioners, and book-agents, especially the latter. The officers, he said, were mainly men with private axes to grind; so were the members of the several Committees, and for the most part, the men who had been appointed to prepare reports.

These charges were, of course, met with a prompt denial. Once a teacher always a teacher, appeared to be the official opinion of the Association.

Officers elected:—Wm. N. Reid, *Pres.* D. H. Cruttenden, E. Danforth, D. C. Rumsey, J. A. Allen, *Vice-Pres'ts.* James Cruikshank, *Cor. Sec.* Alviras Snyder and Edward Smith, *Rec. Sec's.* D. J. Pratt, *Treas.*

Eighty-first Meeting.—October 7th and 8th, 1864, at Phoenix.

Lectures on "*The Moral Influence of the Teacher in the School Room*," by Harris R. Greene, A. M., of Worcester, Mass.; "*English Grammar Pronouns*," by A. A. Gamwell, Esq., of Providence; "*Strike while the Iron is Hot*," by Rev. J. T. Edwards, of East Greenwich.

Discussions on "*At what age should Children commence taking Writing Lessons, and when should they begin the study of Geography and Grammar?*" by Hon. H. Rousmaniere, Rev. B. P. Byram, Ira D. Seamans, and George W. Spanlding; "*Ought Parents to be Compelled to send their Children to School?*"

by Messrs. Rousmaniere, Seamans, Titus, and Byram; "*What are the more apparent Hindrances to the Elevation of our Public Schools?*" by Messrs. Rousmaniere, J. T. Edwards, Wm. A. Mowry, and N. W. DeMunn; "*The Importance of Spelling, and how it ought to be Taught?*" by Messrs. F. B. Snow, of Providence, Mowry, Edwards, and others.

Eighty-second Meeting.—October 21st and 22d, 1864, at East Greenwich.

Lectures on "*The Lights and Shadows of the School Room,*" by Rev. J. H. McCarty; "*Language,*" by Rev. S. A. Crane, D.D.; and "*The Power of Truth,*" by Joshua Kendall, A. M.

Discussions on "*What are the Mile-stones marking Educational Progress?*" by Hon. H. Rousmaniere, Messrs. Edwards and Eastman and others; "*What Studies should receive more attention in our Schools than they now receive?*" by Messrs. Mowry, Crane, Mr. Commissioner Chapin, and others; "*What Considerations are sufficient to warrant a Change in Text-books?*" by Messrs. Kendall, Dr. Chapin, DeMunn, and Edwards.

Eighty-third Meeting.—Nov. 18th and 19th, 1864, at East Providence.

Lectures on "*Puritan Education,*" by Rev. Leonard Swain, D. D.; "*English Grammar,*" by F. B. Snow, Esq., of Providence; "*Lessons from Nature,*" by Mr. J. F. Cady, of Warren; "*The Common Difficulties arising in the School Room,*" by Joshua Kendall, A. M.; and "*The True Teacher,*" by Hon. J. B. Chapin, Commissioner of Public Schools.

Discussions on "*The Importance of Coöperation of Parents with Teachers, and the best method of securing it,*" by Messrs. Kendall, Gamwell, Snow, and others; and on the several topics presented by the lecturers, by various members of the Institute.

Eighty-fourth Meeting.—Dec. 16th and 17th, 1864, at North Scituate.

Lectures on "*The Lights and Shadows of the School Room,*" by Rev. J. H. McCarty; "*Spelling,*" and also "*What are the Legitimate Studies of the Common School?*" by F. B. Snow, Esq., of Providence.

Discussions on "*What Considerations are necessary for the establishment of a High School in the Rural Towns,*" by Revs. Wm. H. Bowen, B. F. Hayes, and Fobes, and by Messrs. Mowry and Snow; "*How shall a Teacher elevate his Profession?*" by Messrs. Hayes, Colwell, and others.

Eighty-fifth Meeting.—TWENTY-FIRST ANNUAL MEETING.—January 27th and 28th, 1865, at Providence.

Election of Officers.

Lectures on "*The Duty of the Teacher to Himself,*" by Prof. Joseph Eastman, of East Greenwich; "*The English Language,*" by Dr. Crane; "*English Composition,*" by Prof. Dunn; "*Given a man—How to make the most of him,*" by Rev. E. B. Webb, of Boston; "*Child Culture, by the methods of Object Teaching,*" by E. A. Sheldon, Esq., of Oswego, New York; "*Ventilation,*" by D. B. Hagar, Esq., of Mass.; "*History,*" by Rev. Barnas Sears, D. D.

Discussions on "*Have Teachers a right to compel Scholars to give up any article in their possession that is a cause of disorder in School?*" Answered emphatically in the affirmative by the Commissioner, Dr. Chapin.

TWENTY-SECOND ANNUAL MEETING.—At Providence, January 26th and 27th, 1866.

Election of Officers.

Lectures on "*The Study of English Literature,*" by Prof. Dunn; "*Teaching as answering an Internal Want of the Pupil,*" by Prof. S. S. Greene; "*Political Education in Public Schools,*" by Rev. Prof. J. Lewis Diman; "*Educational Missions at the South,*" by Col. T. W. Higginson; "*Topography of Rome,*" by Samuel H. Taylor, LL. D., of Andover, Mass.; "*The Value of Scientific Studies, as a means of Discipline,*" by Prof. Josiah P. Cooke, Jr., of Harvard College.

Resolutions appropriate to the event of the death of Rev. Francis Wayland, D. D., LL. D., were unanimously passed, after eulogistic remarks by Professors Dunn and Greene, Dr. Chapin, Rev. Geo. A. Willard, Hon. John A. Kingsbury, and Messrs. Wm. A. Mowry and Isaac F. Cady.

Eighty-sixth Meeting.—October 10th, 11th, and 12th, 1866, at Pawtucket.

Lectures on "*The Best Methods of Teaching the Art of Vocal Music*," by Dr. Lowell Mason; "*Spelling*," by Prof. F. S. Jewell, of the State Normal School, Albany, N. Y.; "*The True Uses of History*," by President Sears, of Brown University; "*Grammar and Analysis*," by Prof. Jewell; "*Declamation*," by J. F. Claflin, of Worcester; "*Geometry*," by Prof. S. S. Greene; "*Temperance*," by Dr. Charles Jewett; "*Health*," by Dr. Trine; "*Elocution*," by Prof. Mark Bailey, of Yale College; "*Fractions*," by Geo. N. Bigelow, Esq., of Mass.; "*Normal Schools*," by Prof. Jewell.

More than four hundred teachers were present at this meeting of the Institute; and many class exercises were given in "*Writing*" by Mr. Bowler; "*Arithmetic*," by Mr. J. F. Claflin; "*Geography*," by Prof. Jewell; "*Reading and Notation*," by Mr. Bigelow.

Eighty-seventh Meeting.—TWENTY-THIRD ANNUAL MEETING.—January 26th, 1867, at Providence, holding but one session.

Election of Officers.

Discussions on "*The Reestablishment of the Normal School*," "*Institutes of Instruction*," "*The Rhode Island Schoolmaster*."

Resolutions on "*A National Bureau of Education*" unanimously adopted.

The following are the resolutions presented by Dr. Chapin, Superintendent of Public Instruction, on a National Bureau of Education, and which were unanimously adopted:—

WHEREAS, It is the earnest belief of this Association that universal education is a matter of vital national concern, and that in a Republican government, *the whole power of education* is required for its prosperity and progress; and

WHEREAS, It is our unanimous opinion that the interests of education would be greatly promoted by the organization of a National Bureau of Education, which could render needed assistance in the establishment of school systems where they do not now exist, and which would also prove a potent means for improving and vitalizing existing systems; therefore

Resolved, That the Senators from this State in the National Congress be earnestly and respectfully requested to endeavor to secure the passage of a bill by the United States Senate, which shall provide for the establishment of such a national educational department as shall accomplish the purpose proposed.

A copy of the preamble and resolutions was ordered to be signed by the President and Secretary, and sent to each Senator and Representative from Rhode Island, at Washington.

Eighty-eighth Meeting.—TWENTY-FOURTH ANNUAL MEETING.—Jan. 24th and 25th, 1868, at Providence.

Election of Officers.

Lectures on "*Our Educational Wants*," by T. L. Angell, Esq.; "*Symmetrical Culture*," by Rev. J. T. Edwards; "*How to teach Language to Children*," by Prof. S. S. Greene; "*Elocution*," by Col. Homer B. Sprague; also an address by Col. Sprague on "*John Milton as a Teacher*," "*The Metrical System of Weights and Measures*," by John H. Appleton, Esq.; "*Geography*," by Mrs. Smith; "*The Relation of the Teacher to the Pupil*," by J. Tenney, Esq., of Mass.

Discussions on "*The Necessity of Normal Schools*," "*School Discipline*," "*Methods of Teaching Spelling*," "*Methods of Teaching Reading*," "*The Teacher's Daily Preparation for the School*."

Eighty-ninth Meeting.—February 28th and 29th, 1868, at Wakefield.

Lectures on "*The Use and the Abuse of Illustration*," by Rev. J. T. Edwards; "*The Proper Method of teaching Geography*," by the President, N. W. DeMunn; "*The Study of Grammar*," by M. Almy Aldrich, Esq.; "*Arithmetic*," by the President, and also discussed by Hon. G. R. Hazard.

Resolutions in favor of increasing the number of meetings of the Institute, and commending the wider circulation of "*The Rhode Island Schoolmaster*," and also urging the importance of reestablishing a Normal School.

SEVENTEENTH ANNUAL MEETING.—At Meadville, August 1st, 2d, and 3d, 1865. *President*, Prof. A. F. Allen.

Addresses were delivered as follows: "*Welcome*," by Prof. Marvin, Meadville; "*Inaugural Address*," by the President; "*The Duty of the Civil Government to Promote General Education*," by Rev. Thomas K. Beecher, Elmira, N. Y.; "*The Position and Duty of the Church with regard to the Public School Teacher*," by Prof. F. S. Jewell, Principal of the State Normal School, Albany, N. Y.

An interesting discussion took place on "*The Importance of the Coöperation of the Christian Ministry in the Cause of Popular Education*," in which Professor Thompson of Edinboro' Normal School, Rev. Dr. Loomis of Allegheny College, and Mr. Wyers, participated. A report was read by J. H. Shumaker, on "*The Relations of the Common School to the Higher Institutions of Learning*," on which report a lengthy discussion took place, in which Col. McFarland, Rev. T. K. Beecher, Mr. Cruikshank, Dr. Burrowes, Prof. Wickersham, Mr. Burt, Prof. R. S. Thompson, and others, engaged with much spirit; also a report by Prof. Edward Brooks, of Millersville, on "*The Effect of Common School Systems upon Parental Education*."

Resolutions appropriately referring to the decease of Bishop Alonzo Potter, were unanimously adopted.

The officers elected were:—Samuel P. Bates, of Harrisburg, *Pres.*; *Recording Secretaries*—Geo. McFarland, of Harrisburg, and Robert McCord, of Mifflin; *Cor. Secretary*—Robert McDivitt, of Huntingdon; *Treasurer*—Amos Row, of Indiana.

EIGHTEENTH ANNUAL MEETING.—At Gettysburg, July 31st, and Aug. 1st and 2d, 1866. *President*, Dr. S. P. Bates.

Addresses were delivered as follows:—"Welcome," by Aaron Sheeley; "*Response*," by Prof. Edward Brooks, Chairman of the Executive Committee; "*Inaugural Address*," by the President; "*The Relation and Duties of the Christian Ministry to the Cause of Popular Education*," by Rev. Dr. Brown; followed by Rev. Dr. Hay, upon the same subject; "*Patriotism in the Light of the Events at Gettysburg*," by Prof. M. L. Stoever.

Reports were presented on "*Methods of Teaching the English Language*," by Prof. J. D. Street; "*Methods of Teaching Natural Philosophy*," by Prof. S. R. Thompson; "*The Development of the Æsthetic Nature*," by Prof. James Waters. Interesting essays were read by Col. McFarland, on "*The Victory at Gettysburg the Work of the Teacher*;" and "*Human Culture*," by Rev. T. H. Robinson.

Discussions of great interest, participated in by a large number of members of the Association, were had on the following subjects:—"Should Colleges admit Pupils of both Sexes?" "*The Past, Present, and Future of the County Superintendency*," and upon the several reports presented during the sessions.

Tuesday evening, a large number of the members of the Association visited the scene of the first day's engagement on the Lattlefield of Gettysburg, under the guidance of Col. McFarland, who himself lost a leg in the battle on that first day, and whose descriptions of the positions occupied by the different troops on that occasion, and narrations of incidents of the day, were highly enjoyed by his companions. On Wednesday morning, at a little after 8 o'clock, the members of the Association visited the scene of the second and third days' engagements, accompanied by Major Lee, Col. McFarland, and the venerable John Burns, in explaining the events which occurred upon Round Top and Culp's Hill, while Col. Owen acted as guide to those who chose to visit the ground taken by the left wing of our army, where the heaviest fighting occurred on the third day.

The most interesting feature of the meeting was a visit to Cemetery Hill on Wednesday evening, where Prof. M. L. Stoever acted as President of a meeting, consisting of members of the Association, with many citizens, the exercises consisting of singing the Star Spangled Banner by a Glee Club, and the reading of President Lincoln's address, at Gettysburg, by Major Harry T. Lee.

The officers for 1867 were Wm. F. Wyers, *Pres.* Col. Geo. F. McFarland, *Sec.* J. P. McCaskey, *Cor. Sec.* Amos Row, *Treas.*

NINETEENTH ANNUAL MEETING.—At Bellefonte, August 6th, 7th, and 8th, 1867. *President*—Prof. Wm. F. Wyers.

Addresses were delivered as follows:—"Welcome," by R. M. Magee, Esq., County Superintendent of Centre County; "*Response*," by Prof. A. N. Raub; "*Inaugural Address*," by the President; on "*The Analysis of Nature from which to deduct a System of Education*," by Gen. Jno. Frazer, Pres. of Pennsylvania Agricultural College; "*The Connection between the Church and Teaching*," by Rev. Mr. Taylor, of Philadelphia; "*The late Supplement to the School Law*," by Hon. J. P. Wickersham, State Superintendent; "*In behalf of the Blind*," by Rev. E. W. Whelan, (blind,) of Philadelphia; "*The National Department of Education*," by Z. Richards, Esq., of Washington, D. C.

Discussions, animated and profitable, were had on the following topics:—"Should we have a State Board of Education, and what

should be its Powers?" "Compulsory Attendance;" and also upon the reports presented, by Prof. Charles H. Harding, on "*The Methods of Teaching the Etymology of our Language*;" by Prof. Charles W. Deans, on "*The Relation of Manual Labor to Education*;" "*The Institute—County and District*," by J. W. Allen, County Superintendent of Potter County.

The following resolution was unanimously adopted:

Resolved, That we rejoice in the establishment of an Educational Department at the city of Washington, and that in its chief, Hon. Henry Barnard, we recognize one of the ablest educators in America.

The officers elected were:—Prof. Edward Brooks, *Pres.* Prof. C. H. Harding, *Rec. Sec.* A. D. Einshowa, *Assistant Sec.* J. P. McCaskey, *Cor. Sec.* Amos Row, *Treas.*

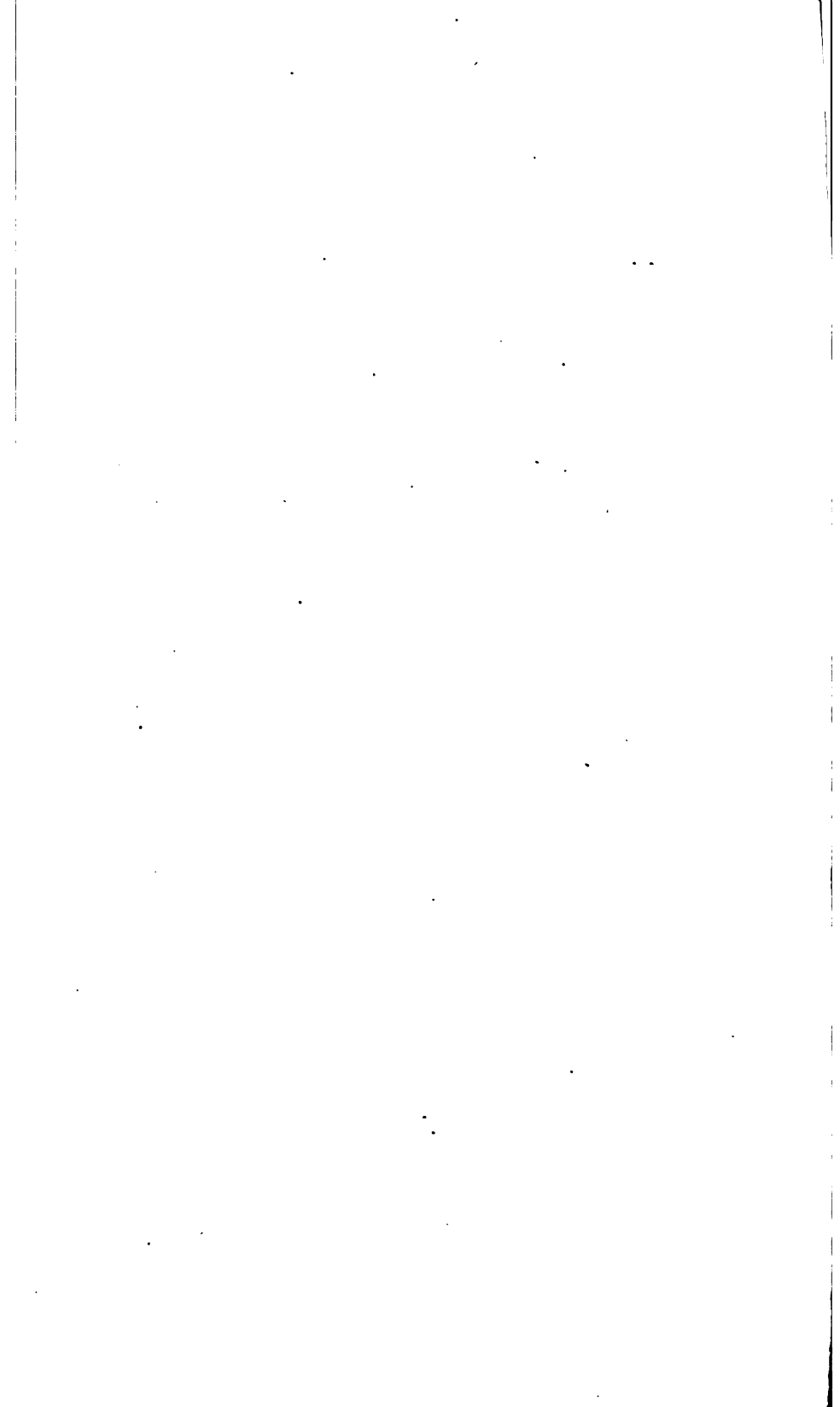
TWENTIETH ANNUAL MEETING.—At Allentown, August 4th, 5th, and 6th, 1868. *President*, Prof. Edward Brooks.

Addresses were given—"Welcome," by E. J. Young, Esq., County Superintendent of Lehigh County; "*Response*," by H. S. Jones, Esq.; "*Inaugural Address*," by the President; "*Geographical Names of the United States*," by Prof. T. C. Porter; "*Etymology as a Means of Education*," by Prof. S. S. Holdeman; "*The Comparative Progress of the Schools during the Year*," by Hon. J. P. Wickersham, State Superintendent. Papers were read, on "*The Teacher and Literature*," by Miss Anna Lyle, of Columbia; "*The Greatness of our Work*," by Miss Maria L. Sanford, of Parkersville; "*The College Bill*," by Prof. Coppee.

Reports were presented on "*Educational Statistics*," by Col. G. F. McFarland; "*The Relation of the Normal School to a General System of Education*," by Prof. A. N. Raub; "*The two Systems of Education in Pennsylvania*," by J. Newton Pierce, Esq.; "*Boarding Schools: their Sphere and Duties*," by Prof. J. H. Shumaker.

Discussions were had on "*The Change in the School Law relating to Professional and Permanent Certificates*," by many members; and on "*Compulsory Attendance*," also on "*The Influence of our Common Schools on Correct Speaking and Writing*." A series of resolutions, proposed by Dr. Burrowes of Lancaster, recommending that State appropriations to districts be distributed in proportion to actual attendance; reminding churches of their duty in regard to the schools; and urging parents, ministers of the gospel, and school officers, to direct their efforts to prevent irregularity of attendance at school, was unanimously adopted.

Officers elected:—S. S. Jack, *Pres.* C. H. Harding, *Sec.* E. O. Lyte, *Ass't Sec.* J. P. McCaskey, *Cor. Sec.* Amos Row, *Treas.*



ELEVENTH SEMI-ANNUAL MEETING.—At Delaware, July 7th and 8th, 1858. M. F. Cowdery, *President*.

Addresses were given by the President, on "*The Condition, Wants, and Hindrances of the Association*;" by Prof. Robert Allyn, on "*Learning and Teaching—Doing and Theorizing*;" by Dr. Clark, of Cincinnati, on "*Theses on Education and Mental Power*;" by Dr. Henry Barnard, of Connecticut, on "*A Course of Study for High Schools*;" by Rev. Mr. Resor, on "*The Importance of Introducing Practical Subjects for Consideration by the Association*;" by Mr. Royce, on "*Teaching Reading*;" by Rev. Dr. Thomson, on "*What Colleges are doing*."

Discussions were had on subjects presented in reports, by Mr. Lynch, on "*County Superintendents*;" by Mr. Ogden, on "*Normal Institutes*;" by Mr. White, on "*Classification and Gradation of Public Schools*;" by Pres. J. W. Andrews, on "*Courses of Study for High Schools*;" by Dr. Catlin and Dr. Hartshorn, on "*The Self-reporting System*."

Essays were read by Mr. M. D. Parker, of Cincinnati, on "*The Best Means of Developing Model Teachers*;" and by Mr. J. H. Klippart on "*The Introduction of Scientific Questions into Schools to Arouse Thought*."

ELEVENTH ANNUAL MEETING.—At Dayton, July 6th and 7th, 1859. John Hancock, *Vice-President*, in the chair.

Addresses were given by the Vice-President, J. Hancock, Esq., on "*The Diffusion of Knowledge*;" by Hon. H. Canfield, on "*The Importance of an Efficient School System, School Supervision, and Legislation*;" by E. H. Allen, Sup't of Schools in Chillicothe, on "*The Methods of Tuition by Instruction on the one hand, and by Development on the other*."

Discussions were had on various reports presented, by Pres. J. W. Andrews, on "*A Course of Study for High Schools*;" by Mr. Hartshorn, on "*The Requisites of Good Schools*"—twelve in number;—and on an essay read by Rev. A. Duncan, on "*Teachers' Meetings*."

E. E. White, of Portsmouth; W. N. Edwards, of Troy; E. H. Allen, of Chillicothe; M. D. Parker, of Cincinnati; John Ogden, of Cincinnati; Horace Mann, of Antioch College; A. Duncan, of Newark; A. Smyth, of Columbus, and A. J. Rickoff, of Cincinnati, were appointed delegates of the Association to attend the meeting of the National Teachers' Association at Washington, D. C., on the Second Wednesday in August next.

Officers elected :—John Hancock, *Pres.* Horace Mann, Robert Allyn, Lorin Andrews, M. F. Cowdery, and D. F. DeWolf, *Vice-Presidents.* R. W. Stephenson, *Rec. Sec.* W. T. Coggeshall, *Cor Sec.*; and Rev. A. Duncan, *Treas.*

TWELFTH ANNUAL MEETING.—At Newark, July 5th and 6th, 1860. John Hancock, *President.*

Addresses were given by the President, "*Inaugural*;" William T. Coggeshall, upon "*The Life and Services of Horace Mann*;" Prof. E. B. Andrews, Annual Address—subject, "*Education—Nature the Teacher*;" W. E. Crosby, on "*Growth*."

Discussions were had on "*Local Supervision*;" and on the topics presented in the reports, viz., on "*The Classics, in reference to Rational Education*," by Geo. H. Howison; "*The Culture of the Will*," by E. H. Allen; "*School Libraries*," by W. D. Henkle.

Resolutions were unanimously adopted in favor of the establishment of High Schools, after a thorough discussion, in which Messrs. White, Shephardson, Marsh, Edwards, Lynch, Tappan, Vent, McCrea and Kingsley participated.

Officers elected :—Asa D. Lord, *President.* Rev. Robert Allyn, Rev. Alex. Duncan, Wm. N. Edwards, T. W. Harvey, and Wm. H. Young, *Vice-Presidents.* J. H. Reed, *Rec. Sec.* Prof. B. L. Lang, *Cor. Sec.* Charles S. Royce, *Treas.*

THIRTEENTH ANNUAL MEETING.—At Elyria, July 2d, 3d, and 4th, 1861. Dr. A. D. Lord, *President*

Addresses were delivered by G. G. Washburn, Esq., President of the Board of Education of Elyria, "*Welcome*;" by the President, "*Inaugural*;" Mr. M. T. Brown, on "*The Orators of the People*;" Rev. Thomas Hill, of Yellow Springs, on "*The True Order of Studies*;" Hon. Anson Smyth, State School Commissioner, on "*The Condition of Schools and Education in the State*;" and an impromptu poem was given by Rev. Thomas Hill, entitled "*All Hail to the Stars and Stripes*."

Reports were made by Mr. M. F. Cowdery, on "*Local School Supervision*;" Mr. A. J. Rickoff, on "*Primary Instruction and Discipline*;" Mr. M. T. Brown, on "*Gymnastics in Schools*;" Rev. A. Duncan, on "*Inculcating a Spirit of Patriotism*;" Mr. Wm. Mitchell, on "*Instruction in Natural History*."

Discussions were had on the various reports, and the following officers were chosen for the ensuing year :—Wm. N. Edwards, *Pres.* J. P. Hole, G. K. Jenkins, Robert Allyn, and Wm. McKee, *Vice-Presidents.* Edwin Regal, *Sec.* Chas. S. Royce, *Treas.*

FOURTEENTH ANNUAL MEETING.—At Mt. Vernon, July 1st, 2d, and 3d, 1862. Rev. Robert Allyn, of Cincinnati, one of the Vice-Presidents, in the chair, in consequence of the illness and absence of the President.

Addresses were given by Samuel Israel, Esq., Pres. of the Board of Education of Mt. Vernon, "*Welcome*," by Hon. Anson Smyth, "*Response*," Rev. Thomas Hill, on "*The Course of Study for the Different Sexes in a Liberal Education*," Hon. Harvey Rice, on "*The Duty to Educate the Masses*," and by Prof. A. S. Welch, on "*Nature, the Teacher's Guide*."

Reports were read on "*Composition in School*," by Rev. Robert Allyn; "*The Life of Pestalozzi*," by T. E. Sulist; on "*Object-Teaching*," by Dr. Lord, for the Committee.

Papers were read on "*Moral Instruction*," by M. F. Cowdery, and a Eulogy on "*The Life and Labors of Lorin Andrews*," by W. T. Coggeshall.

Discussions were had on the several reports presented, in which most of the principal teachers participated.

Officers elected:—E. E. White, *President*. E. T. Tappan, Harvey Rice, J. H. Barnum, and A. C. Fenner, *Vice-Presidents*. G. T. Chapman, *Sec.* C. S. Royce, *Treas.*

FIFTEENTH ANNUAL MEETING.—At Cleveland, June 30th and July 1st and 2d, 1863. E. E. White, *President*.

Addresses were given by Dr. Maynard, of Cleveland, "*Welcome*," John Hancock, "*Response*," the President, "*Inaugural*," Rev. F. Merrick, "*Annual Address*," Dr. A. D. Lord, "*Twenty-five Years in the Schools of Ohio*," M. T. Brown, on "*Reading as a Fine Art*."

Reports were made by R. W. Stevenson, on "*The Examination of Teachers*," E. W. Roch, on "*Physical Training*," A. J. Rickoff, on "*The True Course of Study for our District Schools*," A. G. Hopkinson, on "*Object Lessons*."

A series of resolutions on National Affairs was reported by John Hancock, which, after several patriotic speeches by Messrs. Hancock, Brown, Cooper, and Hartshorn, was unanimously adopted. Among other resolutions on the subject of educational literature, was the following:

Resolved, That while our State Educational periodical deserves our first attention, we should do all in our power to extend the circulation of other good educational journals, and most of all, Barnard's American Journal of Education, the great embodiment of the educational literature and spirit of our Nation."

Officers elected:—Charles S. Royce, *Pres.* M. T. Brown, T. W.

Harvey, and Edward Regal, *Vice-Presidents*. S. A. Norton, *Secretary*. Daniel Hough, *Treasurer*.

SIXTEENTH ANNUAL MEETING.—At Toledo, July 5th, 6th, and 7th, 1864. *President*, Charles S. Royce.

Addresses were delivered by Mr. DeWolf, "*Welcome*;" Hon. E. E. White, "*Response*;" the President, "*Inaugural*;" Hon. Sam'l Galloway, the first President of the Association, on "*The Necessity of greater attention to Moral and Religious Instruction, in view of the present condition and future wants of our Country*;" Thomas W. Harvey, on "*The Requisites for a Successful Teacher*."

At this meeting a new feature was adopted, of dividing the Association into Sections A and B, to the first of which were referred questions pertaining to the Science and Art of Teaching; and to the second, papers and addresses designed to promote the general interests of Common Schools.

Reports were made "*On the Importance of Special Preparation on the part of Primary Teachers, and the best Method of securing such Preparation*," by Daniel Hough; on "*County Supervision*," by W. D. Henkle; "*Truancy*," by Mr. Dickerson; "*Normal Schools*," by Hon. Rufus King.

Discussions were had on all the reports, and were very generally participated in. A resolution was adopted, expressing the sense of the Association in the injustice resulting from the great disparity in the wages of male and female teachers.

Officers elected:—T. W. Harvey, *President*. E. H. Allen, L. Harding, J. O. Chapman, *Vice-Presidents*. H. J. Caldwell, *Sec.*, and Daniel Hough, *Treas.*

SEVENTEENTH ANNUAL MEETING.—At Cincinnati, July 5th, 6th, and 7th, 1865. *President*, T. W. Harvey.

E. E. White and Lyman Harding were chosen Presidents respectively of Sections A and B.

Addresses were given by the President, "*Inaugural*;" Hon. Henry Barnard, on "*The Duties of the National Government in regard to Education*;" Rev. James Fraser, of England, sent to this country by the Royal Commission, to examine and report upon the American Common School System, on "*The English Schools—Training and Parochial Schools*," more particularly.

Reports were presented on "*Competitive Examinations*," by A. J. Rickoff; "*Truancy*," by R. W. Stevenson; "*The Necessity of a Special Course of Professional Training for Teachers*," by Hon. E. E. White; "*Oral Instruction*," by Mr. Crosby; "*School Government*,"

by Mrs. N. A. Stone; "*How should Arithmetic be taught to Advanced Classes?*" by Prof. A. Schuyler.

Discussions were had on "*The Extent and Mode of Teaching Geography,*" and upon the several reports.

The following resolution was adopted:—

Resolved, That we heartily approve the measure of establishing at Washington, in the Department of the Interior, an Educational Bureau for the Advancement of General and Liberal Education, and we would earnestly urge upon Congress the importance of establishing such a Bureau.

The following gentlemen were chosen a Committee to memorialize Congress upon the establishment of a Bureau of Education, in accordance with the foregoing resolution: Messrs. Hartshorn, White, Rickoff, Andrews, and Weston.

Officers elected: Eli T. Tappan, *President*. A. Schuyler, A. Holbrook, and O. N. Hartshorn, *Vice-Presidents*. W. H. Venable, *Sec.* J. F. Reimund, *Treas.*

EIGHTEENTH ANNUAL MEETING.—At Zanesville, July 3d, 4th, and 5th, 1866. *President*, Eli T. Tappan.

Addressees were given by A. T. Wiles, "*Welcome*;" by the President, "*Inaugural*;" and by General Leggett, in connection with the reading of the Declaration of Independence by Hon. E. E. White, in commemoration of the 4th of July; by Col. S. S. Fisher, on "*Teaching as a Profession*;" by John Ogden, on "*The Condition and Prospects of the Freedmen.*"

Discussions were had on the questions, "*Ought the Study of Higher Arithmetic to give way to the Study of Algebra and Geometry, etc.?*" "*Whether English Grammar is now taught with any considerable advantage to the Student?*" and on reports and papers presented.

The following resolution was adopted:

Resolved, That this Association fully indorses the bill to establish a National Department of Education, recently passed by the House of Representatives and now before the Senate, and that it extends to the Hon. Jas. A. Garfield, of Ohio, the author of the bill, and to all the members of the House who gave the measure an active and earnest support, its hearty thanks.

Officers elected:—Wm. Mitchell, *President*. W. D. Henkle, J. F. Reimund, and W. E. Crosby, *Vice-Presidents*. S. A. Norton, *Rec. Sec.* G. B. Brown, *Cor. Sec.* R. W. Stevenson, *Treasurer*; and an Executive Committee of five members.

NINETEENTH ANNUAL MEETING.—At Springfield, July 1st, 2d, and 3d, 1867. Capt. Wm. Mitchell, *President*.

Addressees were given by the President—"Inaugural;" Mrs. Mary Howe Smith, of Oswego; Gov. Cox, and others.

Discussions occupied the principal time of the Association on

"*The Mode of appointing Cadets to U. S. Military and Naval Schools;*" and "*The Condition of the Rural Schools of the State.*" The influence of a uniform standard of attainment in even the elementary branches, and the public recognition of merit, irrespective of party or personal preference, on the great mass of the youth of the country, was dwelt on, in the advocacy of appointment to the national schools by competitive examination, over the present mode of political and personal preference.

The following resolution was adopted:

Resolved, That the appointments of Cadets to West Point and the Naval Academy should be made upon competitive examination.

Resolved, That the appointment of the Hon. Henry Barnard as the head of the Department of Education at Washington, gives us great satisfaction; and that we believe his appointment is a just recognition of his great sacrifices and services in behalf of the cause of education.

Officers elected:—W. D. Henkle, *President*. R. W. Stevenson, Prof. W. H. Young, and John Bolton, *Vice-Presidents*. Col. S. M. Barber, *Rec. Sec.* J. C. Harper, *Cor. Sec.* Allen Armstrong, *Treas.* And the usual number for the Executive Committee.

TWENTIETH ANNUAL MEETING.—At Dayton, June 30th, and July 1st and 2d, 1868. *President*, W. D. Henkle.

Addresses were given by W. S. Smith, "*Welcome;*" by the President, "*Inaugural;*" Hon. Harvey Rice, "*Annual Address;*" Rev. Dr. Sprecher, on "*The True Theory and Tendency of American Colleges.*"

Papers were read by W. A. C. Converse, on "*Courses of Study for High Schools;*" Prof. W. H. Young, on "*The Relation of Public Schools to Colleges;*" Rev. J. F. Reinmund, on "*Practical Language Lessons in School.*"

Discussions on "*The Course of Study for High Schools,*" participated in by Messrs. Hancock and Watkins, Pres. Howard, of Ohio University; Pres. Hartshorn, of Mt. Union College; Prof. Hill, Prof. Tappan, Capt. Mitchell, Hon. E. E. White, and Pres. Merrick, of Ohio Wesleyan University; also, on the question, "*How shall the work of Teachers' Institutes be most successfully carried forward?*" introduced by Hon. J. A. Norris, State School Commissioner, who was followed by Prof. Young, Messrs. Caldwell, Rickoff, Tappan, Hancock, Cowdery. A Memoir of the late Wm. N. Edwards, of Troy, was read by Mr. Crosby, of Lima.

Officers elected:—Lyman Harding, *Pres.* Pres. F. Merrick, T. W. Harvey, and G. S. Ormsby, *Vice-Presidents*. Geo. W. Woodard, *Rec. Sec.* J. C. Harper, *Cor. Sec.* Geo. W. Walker, *Treas.*

EDUCATIONAL ASSOCIATION OF VIRGINIA.

IN December, 1863, according to an arrangement, previously made, a Convention of Teachers of the State of Virginia met in the city of Petersburg to organize an association "for the purpose of securing a more intimate sympathy with each other, and that closer union which is necessary to enable them to meet the high responsibilities devolved upon them," and by all possible means to advance the cause of education in the State. At this meeting the "Educational Association of Virginia" was organized. By the Constitution a meeting was to be held annually; but owing to the condition of the country, no meeting was held in 1864 or 1865.

The next meeting was held at Charlottesville, July 17th, 18th, and 19th, 1866.

The officers elected for the ensuing year were:—*President*, Charles L. Cocke, Hollins Institute, Botetourt County. *Vice-Presidents*, S. Maupin, J. L. Campbell, D. Lee Powell, John Hart. *Cor. Sec.*, Rev. A. J. Leavenworth, Petersburg. *Rec. Sec. and Treas.*, W. R. Abbott, Charlottesville.

Addresses were given by J. B. Minor and Dr. McGuffey, on "*The necessity and best modes of conveying a thorough knowledge of the facts and practical precepts of the Bible*;" and by Messrs. McGuffey, Minor, Atkinson, Leavenworth, F. H. Smith, and Martin, on "*The Education of the Colored People, and how it may be best effected*;" and the following resolution was unanimously adopted:

That it is a laudable enterprise for any competent Southern man or woman to engage in the instruction of the Freedmen, with a view to elevate their character, and to adapt them to the successful discharge of the new duties imposed upon them by their changed condition.

Discussions were had on "*The proper order of the development of the Memory, the Imagination, and the Judgment*;" and in the same connection, "*The system of Instruction in the Classics best adapted to the capacity and wants of Youthful Students*," participated in by Messrs. Minor, McGuffey, Holmes, Venable, Preston, Hart, Leavenworth, and others; on "*The proper discipline for Colleges, and the best modes of instruction therein*," participated in by Messrs. F. H. Smith and W. H. McGuffey, those gentlemen taking

opposite views of the question ; and on the question of appointing a Committee of three to address the General Assembly of Virginia a memorial, proposing the institution of a Department of Popular Instruction in connection with the State Government, and which was finally adopted in the form of a resolution :

That a Committee of three be appointed to prepare a Report upon the subject of the institution of a Department of Public Instruction in connection with the State Government, to be communicated to the next annual meeting of this Association.

Prof. J. B. Minor, Gen. F. H. Smith, and Rev. J. M. P. Atkinson, D. D., were appointed as the Committee.

SECOND ANNUAL MEETING.—At Lynchburg, July 16th, 17th, 18th, and 19th, 1867. *President*, Charles L. Cocke, Esq.

Addresses were given by the President, on "*The true idea of a Female School for our latitude, our people, and our day ;*" by Col. J. T. L. Preston, on "*The Ethical Influences of Military Education ;*" by Rev. Dr. Sears, on "*The character, object, and contemplated mode of distribution of the Peabody Educational Fund ;*" also, by the same gentleman, on "*The institution of a Department of Public Instruction in connection with the State Government ;*" by Mr. H. L. Davies, on "*The dignity and importance of the Tutorial Profession.*"

Reports from Committees were adopted, on "*The necessity and best modes of moral and physical training and development ;*" on "*The proper discipline for advanced schools, and the best modes of instruction therein ;*" on "*Geographies ;*" on "*Modern Languages ;*" on "*Metaphysics and Logic ;*" on "*School Architecture ;*" on "*School Discipline ;*" on "*History and English Literature ;*" on "*The proper discipline for Colleges, and the best modes of instruction therein.*"

Discussions were had on "*The necessity and best modes of moral and physical training and development,*" participated in by Rev. Barnas Sears, D. D., and Messrs. Holmes, B. H. Smith, Holcombe, Powell, Cocke, and others ; "*The propriety of employing Emulation as a principle of action,*" participated in by Messrs. Cocke, Atkinson, Winston, and F. H. Smith ; and on the various reports presented from the Committees of the Association, in which the members generally participated. Among the resolutions adopted was one expressing the extreme desire of the Association, that the teachers of Primary Schools for boys and girls, as well as those of Grammar Schools and small Academies, should attach themselves to the Association.

Officers elected :—*President*, John B. Minor. *Vice-Presidents*,

D. Lee Powell, J. T. L. Preston, Jas. P. Holcombe. *Cor. Sec.*, Rev. A. J. Leavenworth. *Rec. Sec. and Treas.*, W. R. Abbott.

THIRD ANNUAL MEETING.—At Richmond, July 21st, 22d, 23d, and 24th, 1868. Prof. John B. Minor, *President*.

Addresses were given by the President, on "*The Responsibility, Dignity, and Influence of the Teacher's Profession*;" by Rev. Dr. Sears, on "*The Education of Girls*;" by Mr. M. A. Newell, Principal of the State Normal School of Baltimore, on the same subject; and also on "*The Art of Teaching*," who was followed by Dr. Sears, on the same subject; by Rev. Dr. Moore, of Richmond, expressing in behalf of the citizens generally the gratification afforded them by the meeting.

Discussions were had on various reports as made by Standing Committees—on "*Drawing as a branch of Education*," by W. G. Strange; on "*Universal Primary Education, and the best means of accomplishing it*;" on "*Spellers and Readers*," by Mr. H. L. Davies; on "*The Latin Language and Literature*," by Mr. Walter Blair; on "*The Education of Girls*," participated in by Messrs. Atkinson, Longley, H. L. Davies, Hogg, Hart, Gould, D. Lee Powell, C. H. Winston, Cooke, and W. T. Davis; on "*Modern Languages*," by Mr. J. M. Garnett; on "*School Discipline*," by Mr. Charles Campbell; and on "*The Teacher's Professional Library*," by Mr. L. M. Blackford.

On motion of Mr. D. Lee Powell, it was

Resolved, That the Executive Committee be instructed to inquire into the expediency and possibility of the establishment of an educational journal, and to establish it, if they shall deem it expedient, and it can be done without expense to the Association.

[Since the action of the Association, as given in the above resolution, the Committee accepted an offer of Mr. Hazlewood to place at their disposal the educational department of his *Seminary Magazine*, to be filled with original and selected matter upon educational topics, and to be under the direction of Mr. Wm. R. Abbott, the Recording Secretary of the Association.]

Officers elected:—*President*, Prof. John B. Minor. *Vice-Presidents*, Rev. B. M. Smith, John M. Strother, Rev. Thomas Hume, Jr., and Rev. W. F. Gardner. *Corresponding Secretary*, Rev. A. J. Leavenworth. *Recording Secretary and Treasurer*, Mr. W. R. Abbott.

Large additions were made to the list of members at this meeting, and it was evident that the Association had gained the confidence of teachers to such a degree as to insure its future prosperity.

The next annual meeting was to be held at Lexington on the 2d Tuesday of July, 1869.

SEVENTEENTH ANNUAL MEETING.—At Ludlow, January 16th, 17th, and 18th, 1867. *President*, Rev. J. Newman, D. D.

Addresses were given by the President, on "*The Teacher's Encouragements to Success*;" by President Angell, on "*The Philosophic Study of Literature*;" by Rev. J. H. Worcester, D. D., in Memoriam of the late James K. Colby; and by Rev. Dr. Kitchell, President of Middlebury College, on "*The advantage of adapting education to the special gifts and aptitudes of each mind*."

Discussions were had on "*The best methods of teaching Reading*," by Prof. Kellogg, of Middlebury, President Kitchell, Messrs. Conant, Bingham, and others; on "*School Houses and School Discipline*," by Gen. Phelps, President Kitchell, and others; on "*What should be added to the present requirements for admission to College?*" by Rev. A. B. Dascomb and Mr. Conant; also, a resolution that "*Women should have the same responsibilities and perform the same duties as men in the management of our Public Schools*."

Officers elected:—*President*, J. S. Spaulding; *Treasurer*, J. M. Camp; *Secretary*, M. Burbank, and a list of Vice-Presidents and an Executive Committee.

EIGHTEENTH ANNUAL MEETING.—At Barton, Jan. 22d, 23d, and 24th, 1868. J. S. Spaulding, *President*.

Addresses by Rev. Wm. A. Robinson, "*Welcome*;" the President, Mr. Spaulding, on "*The Discipline of the Classics*;" Hiram Orcutt, on "*Woman as an Educator*;" Prof. G. N. Webber, on "*The Origin and Connection of Words with Thoughts*;" Prof. M. H. Buckham, on "*Practical Education*;" Prof. B. Kellogg, on "*Use, Abuse, and Misuse of the Mind*."

Discussions were had on "*The Relations to each other of the Common School, the Academy, and the College*," opened with an Essay by C. E. Ferrin, and participated in by Prof. Buckham, and Messrs. Conant and Sanborn, Prof. Kellogg, and Rev. Messrs. Woodward and Robinson; on "*The best method of teaching English Grammar*;" on "*Compositions and Speaking in Common Schools*;" and on "*Text-Books*."

The Association, among other resolutions, adopted one expressing the favorable regard of the Association for the Hon. J. S. Adams, the former Secretary of the State Board of Education, and their gratitude for his eminent services during eleven years of untiring and poorly-requited labors.

Officers elected:—J. S. Spaulding, *President*; D. M. Camp, 2d, *Vice President*; L. V. Ferris, *Rec. Sec.*; Henry Clark, *Cor. Sec.*; O. H. Kyle, *Treas.*; with an Executive Committee.

First Meeting of County and City Superintendents, in Wisconsin.

The law creating the office of County Superintendents in Wisconsin was passed in 1861, and the first general meeting of County and City Superintendents of Schools, was held at Whitewater, August 2d and 3d, 1865.

There were present the Superintendents from fourteen Counties and from the cities of Racine, Milwaukee, and Sheboygan.

Hon. J. G. McMynn, by whom this Convention was called, in his capacity as State Superintendent, presented the matters for the consideration of the meeting in an address, in which he called attention to the following subjects as especially important:—"The Examination of Teachers;" "The Normal School Policy of our State;" "Monthly Reports;" and "The Awakening of Interest among the People."

These subjects were severally referred to Committees, who subsequently reported the same to the Convention, with appropriate resolutions, and they were fully discussed and the several resolutions were adopted.

Letters were read from a large number of Superintendents, regretting inability to be present, and expressing sympathy with the objects of the Convention.

Second Meeting of County and City Superintendents.—At Portage City, Aug. 29th and 30th, 1866. Hon. J. G. McMynn, State Superintendent, was chosen as *President*, and Superintendent Stewart, of Waukesha County, *Secretary*.

The topics brought before the Convention, by the President, in his opening address, were, in addition to those considered at the last annual meeting, "A Course of Study for Common Schools;" "The Qualifications for Admission to Normal Schools;" "More Economy and Efficiency in the Management of Public Schools;" and "Greater Attendance at School."

The several topics of the address of the President were referred to Committees, and the reports made by them were discussed at length, during the sessions of the Convention.

Letters were read from a number of County Superintendents who were unable to be present, embodying valuable suggestions, and expressing a deep interest in the objects of the Convention.

The Third Meeting of City and County Superintendents, in Convention, was at La Crosse, July 23d, 24th, and 25th, 1867; and the Convention was organized by the election of Hon. J. G. McMynn as *Pres't*, and N. E. Goldthwait, *Sec'y*.

The roll was called and the following Superintendents answered:

State Superintendent—J. G. McMynn.

Assistant State Superintendent—A. J. Craig.

County Superintendents—D. W. Rosenkrans, of Columbia; P. I. Adams, of Crawford; O. O. Stearns and N. E. Goldthwait, of Dane; Lorenzo Merrill, of Dodge; I. N. Cundall, of Fond du Lac; D. Gray Purman, of Grant; J. E. Atwater, of La Crosse; Jas. F. Devine, of Milwaukee; Geo. D. Stevens, of Richland; J. I. Foot, of Rock; I. N. Stewart, of Waukesha; J. E. Munger, of Winnebago; A. H. Weld, of St. Croix; A. Kidder, of Eau Claire.

City Superintendents—F. C. Pomeroy, of Milwaukee; B. M. Reynolds, of Madison; S. D. Gaylord, of Sheboygan; O. R. Smith, of Janesville; J. E. Atwater, of La Crosse.

Subsequently, Messrs. Rich, of Adams County; Kidder, of Eau Claire; Parks, of Iowa; and Allen, of Vernon, responded to the roll call.

Letters were read also from the following Superintendents, expressing their

interest in the objects of the Convention:—Messrs. Hanan, of Pepin; Coomba, of Racine; Ellsworth, of Green Bay City; Regenfuss, of Washington; Jennings, of La Fayette; Briggs, of Kenosha; Kenyon, of Juneau; Lucas, of Dunn; Bright, of Walworth; Crandall, of Sauk; Gannon, of Ozaukee, and others.

Reports on the condition of the public schools in the several localities represented by the Superintendents present were made, generally giving encouraging accounts of the prospects of the schools.

Reports were presented by Superintendent Stewart, on "*County Teachers Associations*;" by Superintendent Purman, on "*Methods of Visiting Schools*;" by Superintendent Munger, on "*School Houses*;" by Superintendent Stearna, on "*Indorsing and Renewing Certificates*;" by Superintendent Rosenkrans, on "*Primary Classes*;" and the several reports, with some others presented, were discussed and adopted.

Resolutions were adopted, that the practice of teaching on Saturdays in the District Schools, should be discountenanced; that the primary departments should have the most comfortable, airy, and best furnished rooms; that children under nine years of age are more benefited by three than by six hours' attendance at school in a day; that the chairman of the Convention be instructed to memorialize the legislature for the passage of an act, requiring all teachers of primary schools to be examined in physiology and the laws of health.

Superintendent McMynn offered the following resolution, which was unanimously adopted:

Resolved, That the County Superintendents of Wisconsin, assembled in Convention, desire to express their gratification on account of the recent legislation by Congress, whereby a Bureau of Education has been organized, and a gentleman placed at its head in whose ability we all feel great confidence, and for whose character we cherish great respect.

The meetings were characterized by harmony, and were closed with an appropriate address by Hon. J. G. McMynn, in which he expressed the hope that the inspiration of this meeting would attend all who had participated in it, in the duties of their respective spheres, and that the general interests of the schools would be greatly promoted.

State Teachers' Association.

TWELFTH ANNUAL MEETING.—At Milton, Nov. 15th, 16th, and 17th, 1864
President, C. H. Allen, Madison.

Addresses were given, on "*Political Education*," by Rev. D. E. Maxon, of Milton; "*Education, and the Characteristics of the True Teacher*," by the President; "*Our Educational Progress*," by Hon. J. L. Pickard, of Chicago.

Essays were read, on "*The Teacher, the Common School, and the State*," by G. B. Seaman, Milwaukee; "*The Examination of Teachers*," by A. D. Hendrickson, of Waukesha; "*History in our Schools*," by E. Searing, of Milton; also on "*The Study of History in our Schools*," by E. F. Hobart, of Baraboo; "*A Course of Study for our Common Schools*," by N. C. Twining, of Milton.

Discussions were had on most of the topics presented, and among the resolutions adopted was the following:

Resolved, That the teachers of Wisconsin, cherishing the warmest sentiments of devotion to a united country, regard with grateful hearts the recent successes of Union men, both in the field and at the ballot-box, and find therein auguries of speedy and final success; and that on all occasions, their sympathies, their means and their personal service shall be cheerfully rendered at their country's call.

Officers elected:—W. C. Whitford, Milton, *Pres.* J. K. Purdy, Fort Atkinson, *Sec.* Wm. M. Colby, Madison, *Treas.*

THIRTEENTH ANNUAL MEETING.—At Whitewater, Aug. 1st, 2d, 3d, and 4th, 1865. *President*, W. C. Whitford, Milton.

Lectures were delivered by Rev. W. Alexander, of Beloit, on "*Study*;" the President, on "*The Intellectual Culture of Work*;" Rev. G. Anderson, on "*Utility in Education*;" Rev. J. McNamara, on "*School Discipline*;" Senator T. O. Howe, on "*The Necessity of a more extensive Education for the Welfare of the State*;" Prof. E. Searing, of Milton, on "*Educational Fallacies*;" and Prof. E. H. Merrill, on "*The End of Learning*."

The following are some of the resolutions which were adopted:

Resolved, That the hearty thanks of the Wisconsin Teachers' Association are hereby tendered Senator Howe, for his profound and eloquent address.

Resolved, That, in common with all classes of our fellow-citizens, we deeply mourn the death of our late beloved President, Abraham Lincoln; that we recognize in his assassination, the crowning perfidy and guilt of a rebellion, the most wanton, wicked and causeless, the world ever saw; and that we will labor with renewed zeal and energy to so extend schools that we shall secure the universal education of our people, and thus prevent the recurrence of so disastrous a revolt against good government, liberty and law.

Officers elected:—S. D. Gaylord, Sheboygan, *Pres.* J. H. Terry, Spring Green, *Secretary.* A. D. Hendrickson, *Treas.*

FOURTEENTH ANNUAL MEETING.—At Ripon, July 25th, 26th, and 27th, 1866. *President*, S. D. Gaylord, Sheboygan.

The number of teachers present was larger than usual, and the discussions were earnest and instructive. Lectures and addresses were delivered by Governor Fairchild; S. D. Gaylord, J. G. McMynn, Superintendent of Public Instruction, on general educational topics, by Alex. Kerr, of Beloit, on "*Oral Instruction*;" Prof. Merrill, of Ripon College, on "*Sentential Analysis*;" Dr. C. B. Chapman, of Cincinnati, on "*Chemistry*;" Mr. A. G. Abbott, of Milwaukee, on "*Free Gymnastics*;" James McAllister, Esq., of Milwaukee, on "*The Way to the Nation's Destiny*;" O. M. Baker, of Milwaukee, on "*School Examinations*."

Among the resolutions adopted by the Association were the following:

Resolved, That a Committee of three be appointed to draw up a memorial to the Senate of the United States, expressing the earnest desire of this Association for the passage of the bill creating a National Bureau of Education, and that said Committee be instructed to sign said memorial on behalf of this Association, and forward it to our Senators for presentation to the Senate.

Resolved, That the salary of County Superintendents should be made commensurate with their duties, so that they may be able, without detriment to themselves, to devote their time, talents and energy to the improvement of our common schools.

Officers elected:—O. M. Baker, Milwaukee, *Pres.* Warren D. Parker, Monroe, *Sec.* Arthur Everett, Oshkosh, *Treas.*

FIFTEENTH ANNUAL MEETING.—At La Crosse, July 23d, 24th, and 25th, 1867. *President*, O. M. Baker, Milwaukee.

Addresses were given on "*Intellectual Gymnastics*," by Rev. H. M. Thompson, of Nashotah; on "*Normal Schools*," "*County Superintendents*," "*Educational Journal*," etc. etc., by the President; "*Natural History*," by E. F. Hobart, of Beloit; "*The Primary School*," by O. R. Smith, of Janesville; "*Habits*," by

Hon. J. L. Pickard, of Chicago; "*The Order of Arithmetic, Algebra and Geometry in a course of Mathematics*," by B. M. Reynolds, of Madison; "*A Review of Education in the State*," by Rev. W. C. Whitford, Milton; "*History*," by J. M. Gregory, of Illinois.

Discussions were had on "*Reorganization of the Association*," "*County Superintendency*," "*School Buildings and Ventilation*," "*Compulsory Education*," "*Normal Schools*," "*State University*," etc. etc.

Among the resolutions adopted were the following:

Resolved, That it is the sense of this Association that the State officers ought to take immediate steps to found an asylum for the education of its imbecile and idiotic children.

Resolved, That, as the State Teachers' Association, we congratulate our State University on the acquisition of Prof. P. A. Chadbourne, as Chancellor; a thorough scholar, an able educator, and a man of large experience in public life.

Officers elected;—O. R. Smith, Janesville, *Pres.* A. G. Abbott, Milwaukee, *Sec.* T. C. Chamberlain, Delevan, *Treas.*

SIXTEENTH ANNUAL MEETING.—At Milwaukee, July 21st, 22d, and 23d, 1868. *President*, O. R. Smith, Janesville.

Lectures and addresses were delivered by Hon. Anthony Van Wyck, upon "*Education in Republics*," the *President*, who reviewed the educational progress of the year; T. C. Chamberlin, of Delevan, upon "*Mental Philosophy an aid in Teaching*," W. C. Whitford, Milton, upon "*The History of School Supervision in the State*," J. B. Pradt, of Madison, upon the "*Township System of Schools*," Rev. G. F. Magoun, D. D., Iowa College, upon the "*Education of Woman*," W. D. Parker, Geneva, upon "*Educational Fallacies*," Rev. I. N. Cundall, Madison, upon "*Educational Lessons of the War*," Mrs. Mary Howe Smith, Oswego, N. Y., upon "*Geographical Teaching*," Hon. Newton Batimur, of Illinois, upon "*Industrial Education in this Country*."

Among the resolutions adopted was the following:

Resolved, That it should be the aim of the Normal School, without essentially shortening the curriculum of academic studies, to send forth teachers who shall be thoroughly acquainted with the science and art of their profession, and who shall, by their practical skill, bring into general use the most important methods of instruction.

Officers elected:—Alex. Kerr, Beloit, *Pres.* S. H. Carpenter, Madison, *Sec'y.* Sam'l Shaw, Omro, *Treas.*

N. B.—Minnesota—Should follow page 533.

The following resolution, after a full discussion, was adopted by an almost unanimous vote:

Resolved, That in the judgment of this Convention, the reading of the Bible, without note or comment, in all our public schools, would have a happy moral effect upon the students, supplying thereby the necessary condition of the highest mental development, while at the same time, it would tend to promote that catholicity of thought and feeling which the true patriot and Christian feels, and ought to be more general.

Officers elected:—*President*, Hon. Mark H. Dunnell. *Vice-Presidents*, Profs. W. W. Washburn, J. L. Noyes, G. W. Woodward, W. O. Hiskey, and E. J. Thompson. *Secretary*, Prof. B. F. Wright. *Treasurer*, Miss E. A. Sturtevant.

MAN AS THE SUBJECT OF EDUCATION.

INTRODUCTION.

The *subject* of education is man, in regard to body and soul, in his undeveloped, imperfect state.

The *aim* of education is, to promote his mental and physical abilities, in a manner harmonious with nature, in order that the object intended by nature may be reached as perfectly and as certainly as possible.

This presupposes, above all things, the existence of natural abilities in man; that these abilities can, and should, be developed; and that this development must be effected in harmony with a certain general high aim, which determines the direction of the development.

The science of man, his natural abilities, and the natural development of the same towards a determined highest aim, i. e., Psychology and Anthropology, forms the most necessary foundation of a philosophy of education, and its first part or division.

MAN AS THE SUBJECT OF EDUCATION.

The philosophic observer distinguishes in man, as the subject of education, at once two parts, viz: *body* and *soul*; and between these two parts, a difference, as well as a harmony and coöperation. Considered each by itself, the parts appear not only to be different, but in seeming opposition to each other. Considered in union, they appear not only as being naturally and designedly made for each other, but as the two necessary factors to the product called *life*, each completing the other, and each in want of the completion of the other; each one influenced by the other, and influencing the other in return; and both, although thought of as separable, in reality inseparable, and acting always in union.

However accustomed science may be to separate body and soul, it is far more important for the educator to conceive and observe them in their inseparable reciprocal action, and in his educational work, never to operate upon the one without due consideration of the other.

The body is the organ of the soul, in all the outwardly directed activity of the latter. The former is composed of the same chemi-

cal substances which form the whole remaining visible world. An uninterrupted assimilation and return of the particles from the surrounding world, or a continual change of matter is the condition of its existence, and of all its activities. With the discontinuance of this change of matter in the body, its life becomes extinct.

Entirely different is it with the *soul*. In the midst of all this change of matter, by which, in a short time, the body becomes an entirely new one, containing not a single fibre from the former, the soul retains *unity* and *continuity of consciousness*. This single fact is sufficient to prove the fallacy of the materialistic assertion, that the soul is only a product of the physical organism. If it were, its consciousness also would necessarily change with the change of the particles, by whose coöperation it should be originated. Thus the soul must be considered as endowed with *reality, constancy, and independent individuality*.

But *how* does the soul communicate with this material organ? How is it able to influence and to move it? Why is it that the body so perfectly answers its wants? And what becomes of the soul after having lost this material organ by death? These questions have at all times occupied the minds of the greatest thinkers, without being definitely and conclusively answered yet. The different answers made from time to time to these questions, form the different systems of spiritualism, materialism, and that of the real, organic incorporation, (*die organische Vereinigung*; Fichte). An extended treatment of these systems does not belong here. To the demands of a sound philosophy of education, neither the system of spiritualism of Leibnitz, with its predetermined harmony, answers; nor modern materialism with its denial of the independent existence of the soul, and its continuance after death. The philosophic educator must adhere to a real connection of body and soul, and, at the same time, to a real difference between both, if he means to act upon both with efficiency and a hope of success.

If we compare man with other organic beings, we should seek for the specific superiority of the former, not so much in the nature of his body, as a whole or in parts, but rather in the nature of his soul; for the body is always more or less only the expression of the peculiar type of the soul. If, therefore, the perfection of an organ consists in this, that it answers perfectly its purpose, then the body of animals, in its kind, is not less perfect than that of man. Only so far as the soul of man stands specifically higher than the soul of animals, does it need for the expression of its peculiar type a differ-



ently devised and a relatively more perfect organ. Now, the specific characteristic of the soul of man is SELF-CONSCIOUSNESS; i. e., the ability to make its own thinking, feeling, and volition the subject of reflection.

A soul endowed with self-consciousness, and consequently with rational thought and self-direction, is called *mind*.

The soul of the animal possesses *consciousness*, but not *self-consciousness*; it is, therefore, not mind. We may attribute to an animal an *unconscious* reason (instinct), but it never is conscious of it, or applies it with self-consciousness. Man alone possesses the ability to develop himself to a truly mental being. Man is not born with self-consciousness; much less can we speak of his innate understanding, innate reason, innate memory, innate power of volition, etc. All these, afterwards so decidedly predominating, characteristic activities of man, must be considered as the products of development. For this reason, those activities do not manifest themselves at the beginning at all, and afterwards by different persons, and at different degrees of development, in such a different manner.

But the *possibility* that these powers (reasonable thinking, volition, etc.) can be developed in the soul of man in connection with self-consciousness; that, in the normal course of development, they *must*, sooner or later, make their appearance, and become the property of the human soul, constitutes man's superiority, that which gives him the right to be called a reasonable thinking being, and justifies his taking rank above animals, which are not capable of such development; for this development presupposes an originally different organization.

All activities of the human soul can be reduced to two innate elements, which, however, always act in perfect coöperation, namely: first, the ability to receive and to be influenced by impressions made by outside objects, i. e., *receptivity*; and second, the ability to direct itself towards the objects of the outer world, in order to make them the object of its activity, i. e., *spontaneity*. The coöperation of both elements produces in the soul of man, *conceptions*, *emotions*, and *desires*. Conceptions, emotions, and desires result, therefore, from three different activities of the soul, different only by the differing relations of the two factors.

The soul of man is active in this threefold manner from the very first moment when, through its receptivity and spontaneity, it enters into intercourse with the external world. This activity is, however, in its first attempts, very weak, extensively as well as

intensively—it is almost beyond the boundaries of observation. But it grows every day—indeed, every moment. It is the identical process which we observe in the physical growth of every plant and animal. It is a gradual increase of strength. Every progress contains the germ of further, as it was the result of a former, progress. At every moment, new productions of the activity of the soul are added to the former, and become thus again the material, the means of more fruits. However gradually and constantly, and, as regards single momenta, imperceptibly, this process of development progresses, nevertheless certain stages or periods in it can be distinguished, which exhibit decided characteristics. These periods, or characteristic stages of development, are of the highest importance in regard to education. For, while they exhibit to the educator the nature of his pupil, from a new point of view each time, they teach him, at the same time, the windings through which the development of his pupil goes onwards. And, as in every one of these periods, every mental power assumes a peculiar position, and as only by the relation in which each stands to the other in each stage, is its peculiar value determined, the educator learns to recognize the particular value which belongs to every one of these powers in every moment of time, and at all the periods of development.

Thus will the educator be kept, on the one hand, from overrating any single mental faculty, which might lead to a hurtful preference of the same, and on the other hand, from underrating any faculty, which might lead to its injurious neglect. These principal stages of development or periods of education are so distinctly stamped and imprinted that language has long afforded designations for them. In our own, as well as in every other, certain periods are distinguished—(1) childhood, (2) boyhood, (3) youth, (4) manhood, (5) old age. To the first three of these is assigned the work of systematic education. It is, however, difficult to determine the boundary between these stages of development; they flow almost imperceptibly over into each other. Mere limitations of time cannot define them exactly, since development progresses sometimes quickly, sometimes slowly. It only remains, therefore, to collect the essential signs or tokens of each stage, into a characteristic picture, indefinite enough, in regard to time, to admit all ordinary variations in development.

The whole life of man can be divided into *early age*, *middle age*, and *old age*. Of these, only the early age is the real period of education. It comprises, first, *the childhood*, which is again subdivided into the *first childhood* (until the end of the third year) and

in the *second childhood* (until the end of the seventh year); second, *the boyhood*, which ends with the fourteenth or fifteenth year; and third, *the age of youth*, which ends with the twenty-second or twenty-third year.

Far more important than exact division of time, is, however, the discovery of the characteristics of each one of these periods of development. These are given by the history of the development of man, as experience places it daily before our eyes.

The first sign of life of a new-born child is its *breathing*. With this it enters into an intercourse with the outer world, and particularly with the air, that subtle, mobile, all-penetrating and all-surrounding elastic fluid, which is destined to be an indispensable element of man's life from his first breath to the last. But the opening of this intercourse with the outer world does not seem to be a wholly friendly one, as is indicated by the bitter cry with which the new-born child greets its new, unaccustomed position. This cry is always more or less a painful or impatient act, and, in every case, is caused by outside influences. It is the child's first involuntary and unconscious reaction against any foreign intervention—its first protest against any attempt to treat it as a mere thing. Of course its friends consider this first utterance as a sign of life, and receive it with great joy, and conclude from its greater or less power, upon a greater or less vital strength.

But besides the air, there are other imponderable, and even more subtle elements of life, which, no doubt, bring their never ceasing influences to bear upon the new stranger, such as electricity, magnetism, light. Immediately observable, however, is only that of light. The eye of the new-comer is, by this singular phenomenon, involuntarily and irresistibly attracted, but also, dazzled by its excess, repelled. Particularly plain is the attractive power of the light, if it reaches the eye of the child in the centre of surrounding darkness; if it is, so to speak, concentrated into one point, as, for example, the light of a candle. Henceforth it is the air and the light which exercise the greatest, most decisive, and most extensive educational influence upon the child. The former opens not only the lungs, and, through them, the voice, but also the ear, that most important channel to the child's mind. The latter develops the eye, and presents to the child the wonders of the visible world, which in return are destined to unfold, and gradually to enlighten the inner world of the child. Unhappy the child to whom Nature has inexorably closed these two doors in such a manner that they never can

be opened by light and air! And yet, also, to such, still other doors or organs are open, which, at least partially, supply the want of sight and hearing.

However great the power of the outer world may be in its influence upon the young child, it is, nevertheless, soon observable, that under and through this very influence, the mental power of the child becomes stronger every day, until it has gained freedom, consciousness, and a complete mastery over the influences of the external world. The eye, at first overpowered and dazzled by the light, gradually becomes accustomed, not only to endure it, but to use it at pleasure for seeing. Henceforth it no longer follows involuntarily the attraction of the strongest light, but it chooses the objects which it wishes to see in the light. The hand, at the beginning wholly inactive, and afterwards groping insecurely about, learns to serve the eye by seizing what the eye beholds. The voice, at first nothing but a monotonous, involuntary, irregular cry, commences to become the expression of definite desire, by naming what the eye beholds and the hand grasps. Thus come order and harmony into the actions of the child. It proves the existence of a soul which gives direction and aim to the eye, hand and voice, and causes the movements of these physical organs to appear at the same time, as activities of the soul. From this it follows, as a matter of course, that the development of body and soul ought to progress symmetrically, and should never be divided, and that it is almost an impossibility to separate it in the first period of development. The growth of the limbs, the gradually growing hardness of the bones, as yet still soft, the expansion of the lobes of the lungs, the development of the brain, the breaking through of the milk teeth, etc., are all phenomena which concern the soul of the child no less than its body. They condition and attest the mental as well as the physical growth. Particularly is this manifest in the gradually increasing activity of the senses. The highest senses, *i. e.*, those which are for its highest mental development, namely, sight and hearing, are just the ones which develop themselves first in the child, and furnish thus for its mental development, the first contribution of incalculable importance; while, on the other hand, the lower senses, namely, the senses of taste and smell, develop themselves much later, and reach still later the necessary freedom. It is, again, the mind of the child which causes a quicker development in the senses of sight and hearing, because the mind is principally occupied with the activity of these senses, and keeps them thus in constant exercise. This fact ex-

plains clearly why the mental development of a child is slower and kept back, if one of the higher senses is wanting ; and also why, in consequence of an originally deficient mental receptivity, the development of the perceptive powers progresses slowly and imperfectly, as in the case of the so called *cretins*.

In proportion as the activity of the senses is developed, the perceptive powers also grow. The more definite the activities of the senses, the more definite and clear are the conceptions of the child. Every sense contributes by its activity to the extension, clearness, or correction of the conceptions. Extension and correctness in these can, therefore, not be gained otherwise than through a constant exercise of the senses in correct seeing, hearing, feeling, tasting, and smelling, and by the direction of each sense upon the proper objects of perception. Every perception made through a sense, exercises not only the physical organ as well as the perceiving soul, but leaves also in the latter an impress which alone enables the soul to recall, that is, to remember, previous perceptions. Without these impressions or traces retained in the soul, the latter would be incapable of renewing within itself former perceptions, or, rather, the feeling attending them. The fact that the repetition by the senses of the same observation, and, consequently, of the same perception, facilitates the reproduction of the latter, would be inexplicable without this supposition. These impressions or traces, however, must possess a certain strength, in order to be lasting and capable of a reproduction. The proof of this assertion is found in all those perceptions of the senses which we have made in a state of absence of mind. These disappear within us, *i. e.*, they leave no trace upon our mind strong enough for reproduction. Whilst, on the other hand, all impressions or traces retained in the soul, become strengthened by a repetition of the same perception : hence comes the popular idea and expression—"to impress something upon the memory by frequent repetition." A conception, however, is nothing else than the reception of the characteristics of a perception into the unity of consciousness. This unity of consciousness is mediated by language.

The importance—the indispensableness of language for the formation of clear conceptions, and particularly for retaining and renewing the same, arises from its influence in developing the consciousness of the child. Thus language appears among the earliest means of education. Language is the true cement between the soul of the child and everything else which is destined to enter into a reciprocal action with it. Language leads the soul of the child out

of itself, and makes of the soul an active participant in surrounding nature, and in the world of man. But language also conducts the whole outer world *into* the inner nature of the child, and makes it the inseparable property of the soul. Without language there is no distinct conception; without distinction and clearness of conceptions, there is no durable, solid, lasting seizing and retaining, and, therefore, no security and clearness in further application. Thus is language in regard to extension, clearness, durability, reliability, and, consequently, for the whole education, and the value of remembrance and power of thinking the first necessary condition. With language, the mental life of the child grows visibly. The first words which the child stammers with consciousness, introduce it, in the strict sense of the word, into human society. It is the first self-active step with which it passes the barrier of unconsciousness. It is Correggio's exclamation—"I, too, am a painter." The child seems to feel this itself. It does not become tired of repeating its first-learned word over and over again. And as it has, even earlier, heard and understood many words, without, however, being able to pronounce them, its linguistic progress goes on with surprising rapidity. This progress is such that a child with ordinary abilities is able to speak its mother-tongue in its second year as well as it is needful at this period. What immense progress is gained with the mastery of language for the entire mental development of the child! We can speak with it and instruct it by speech. All communications, all exhortations, all reprimands, all warnings,—in short, all instruction and education is henceforth connected with language. Henceforth the whole life of the child is principally a life in and with language. It grows with the latter, and we can say, "The child (and everybody else) knows just as much as it has words to express," with more correctness than "We know only what we have in our memory," as we often say.

From all this we perceive what an important position the perceptive power occupies, as regards the entire mental development of the child. For language is, first of all, the expression of the conceptions. Without it, feeling and volition would remain undeveloped. The formed conception is the light which gives to feeling clearness, and to volition certainty. And, if it must be admitted that the proper development of the power of volition (the will) and the emotion is to be regarded as the principal aim of all education, yet, after all, it is the power of forming definite conceptions upon which the first and greatest care of the educator should be

bestowed, because without it, volition lacks self-conscious strength, and the emotional nature is wanting in quiet clearness. Conceptions (intuition, idea, thought) is the bridge by means of which alone the educator can not only penetrate into the inner nature of the pupil, but also be able to exercise a truly educating influence.

Without a properly developed power of forming definite conceptions, the emotions and volition (will) are mere playthings of foreign influences, and thus continually in danger of being abused and misled by bad, but mentally superior, men. With the proper development of this power, on the other hand, grow freedom and independence of the will. Only he who *knows* can be really free. Desire receives, after all, its full strength, its true value, *i. e.*, becomes free will when it is enlightened and governed by *knowledge*.

The development of the conceptive faculty commences with intuition (*anschauung*) which will lead to *self-intuition*, which calls forth *self-consciousness*. Intuition of external objects consists in a total apprehension, the limiting and distinguishing of certain outside influences which belong together, and which operate simultaneously upon our senses. This necessarily leads to the comparison of one object with another. After the child has learned to distinguish several objects from one another, and is conscious of the difference between them, the next step is to distinguish its own "self" from the objects of the outer world. At first this is done in a similar manner as it distinguishes one object from another. This is proved by the fact that children at this period speak of themselves in the *third person*. But soon after this, the child recognizes in his own self, in his whole condition, in his volition and his experiences, no longer an external object, but something internal: it learns to distinguish its own "self," not only from all outer objects and phenomena, but it confronts the latter as an independent power, *i. e.*, no longer as an object, but as a subject endowed with self-determination. Henceforth the child speaks of itself in the *first person*. This is the dawn announcing the rising sun of *self-consciousness*. As a general thing, this glorious conquest of growing development is gained in the third stage of life, or youth.

The picture or delineation drawn thus far, comprises, no doubt, the most interesting, most important, and most remarkable period of life. It is interesting, like every beginning of an endless progress, because here everything yet lies simple and clear before our eyes, and can, as to origin and progress, be observed and pointed out. It is important, because in this seemingly insignificant beginning are neverthe-

less included and prepared all further developments and the end. It is the fundamental sketch or outline from which nature, in the continuance of the structure, no more, or very seldom, deviates. It is remarkable, because the receptive and reconstructive powers in no other period manifest themselves in such an astonishing manner, in both the physical and psychological organism. The emotional nature and the will develop themselves in the child in a similar manner as the perceptive faculty. Emotions consist originally in the sensations produced by impressions upon the senses. We call them pleasant if they satisfy our natural appetencies, and unpleasant if they do not satisfy them.

Every sensation of the pleasant or unpleasant presupposes, therefore, an impulse in the child, which announces a want and calls for its satisfaction. At the beginning, our impulses and wants are extremely simple, calling for little more than life and motion. The wants of the child are, therefore, at the beginning, confined to the preservation of life and free motion. The most simple means answering this purpose, satisfies its appetency, and produces in it a sensation of the pleasant. The child, however, does not remain in this state. Its appetency and its wants grow daily. The more wants the child has, the more willful it will become. These wants are multiplied partly by nature itself, but also, alas! by a wrong education, by means of an artificial multiplication of the same. It is evident that in this case it is more difficult to satisfy the child, and that it must often have unpleasant perceptions, which again in turn excite its opposition, and thus may result in moroseness, willfulness, and obstinacy.

It is, therefore, the duty of the educator to confine these wants, as much as possible, within the bounds set by nature, but also to satisfy them, if they are within these bounds, in order to preserve in the child a pure feeling of that which answers best the real demands of nature. By an unnatural increase of wants, as well as by arbitrary denial of the real needs of the child, impulse and emotion become perverted, education is made more difficult, and the moral development of the child takes a wrong direction.

The more difficult period of life is, however, the now following second period of childhood, the boyhood or girlhood.

Henceforth the newly inaugurated contact with the outer world is extended to an unlimited degree. Hardly is the child able, in the crowd of impressions which rush in upon it every moment, to retain his balance, and to keep united the exterior with his interior world

by means of speech. However, with the increase of these impressions, grows also its strength to receive and to retain them. With a thousand feelers the soul of the child reaches out in the world. Like a bee it flies from flower to flower, and rocks itself in the unbounded atmosphere of perception, feeling, and desire. There commences a contest, as it were, a struggle of the soul of the child with the outer world. Every impression presenting itself is received, but not every one becomes the property of the child's soul. Those impressions which are not completely mastered by the soul of the child, disappear again, either without leaving a track behind, or—and this is most likely the case—they affect unconsciously the perceptive faculty, the direction of the will, and the emotions, whether for gain or loss. From this it follows, how important it is that the impressions made at this period by the surroundings of the child upon the latter, should be closely watched and controled.

The external weapons of the child in this contest, are the senses. Its internal weapons are, the faculties of perception and of forming conceptions, the memory, and the power of abstraction. The latter, as well as the former, become stronger by such unceasing exercise.

It is of the highest importance that the child learn to make a proper use of its senses, particularly of sight, hearing, and feeling. Yet more important is it, that the child is kept in constant practice in proper attention, observation, distinguishing, and comparing. The child still lives in this period, principally in sensual perception (*Anschauung*.) Real, individual objects (the concrete), form as yet the child's world. But the impressions offered by the external world always change their form more and more, as the mind of the child reflects upon them; they are, by means of the imagination, reproduced, partly true to nature, partly in new fantastic combinations. Therefore the predilection, in this age, for stories, (particularly *Maehtchen*,) the pleasure in pictures, especially in such as leave much scope for imagination; therefore the great inclination to such plays as are a dramatic imitation of domestic and social relations, and occupy, at the same time, the imagination. Recall in your mind, the plays of girls with their dolls, and those of the boys with their soldiers. But the powers of the child become gradually stronger. In the activity of the soul, choice comes more and more, and finally freedom. All attainments and efforts become more conscious, more independent of the exterior world, or use the latter as a means. The impulse to action, which, at the beginning, was mere desire for mechanical imitation, becomes the desire for attainments

which may govern the objects of the external world. It is also here, again, the power of perception which exercises a predominating influence upon the whole mental progress, relatively upon the freedom of the mind from the bondage of the external world. After the child has had sufficient practice in the apprehension of such pictures of the exterior world as are perceivable by the senses, *i. e.*, in a conscious exercise of the faculty of forming sensuous perceptions, then again in the repetition, combination, and comparison of the same, by means of the imagination, in view of certain considerations, then the next step is, the separation of the essential from the accidental qualities of an object, and the collection of the former into the unity of consciousness, *i. e.*, *the formation of ideas*. With this, the child enters a new world, in which it is, as a thinking being, destined to become always more at home, *i. e.*, *the world of ideas*. Henceforth it looks at the objects of the exterior world differently. It looks not only at the single individual object, which influences directly its senses, it embraces a vast number of similar objects, and combines these many individualities into *one* whole. The idea formed thus (based, it is true, upon intuition—sensual perception *Anschauung*—but being itself no intuition, but a pure act of thinking) is collected into the unity of a “word,” by which it recognises the whole as its mental property. It is evident, that by this mental activity, the foundation is laid for the government of the mind over the exterior world. The proud word put under Linnæus’ picture—“*Deus creavit, Linnæus disposuit*,” is, in this sense, true of every man awakened to independent thought. But also the language of the child has, by this mental process, gained new strength and new copiousness. Just so long as it was limited to the domain of concrete perceptions, it was necessarily poor, for it was completely dependent upon the direct intuition of the senses. It was only able to name what the child had seen, heard, felt, smelt, or tasted. For more than that, indeed, the child had no occasion. It had enough to do, to find its way within this circle, and to impress upon its mind the lessons in language which it received from its surroundings. But now the child is upon a higher standing point, from which it overlooks a more extended circle. It systematizes its knowledge according to a law which lies within itself. It increases and extends its language as well as its ideas, from within. It no longer takes lessons in language simply from the external world, but it is its own teacher, *i. e.*, it forms ideas spontaneously and devises words by which to express them. It speaks and thinks in ideas which, from the most

simple abstractions, always ascend to higher ones, and which increase their contents by analysis, and their compass by synthesis.

It is self-evident that the progress described thus far could take place in this manner only in the beginning, *i. e.*, in the very first development of human language at large. The child in our days finds an already developed language. Its earliest and greatest task is only to familiarize itself with the same, in a manner that it becomes its *native* or *mother tongue* in the strictest sense of the word. That is, that it becomes the source of its ideas, and the means of its mental clearness. It cannot do, and need not to do much for this purpose. It finds every thing prepared, and it becomes accustomed to give to its ideas the same names as those do who surround it. Most names for higher classes of ideas the child hears earlier than it is able to find their true meaning in a synthetical manner. It hears and retains, for instance, much earlier the name "*tree*" than "*apple tree*," or any particular *kind of apple tree*. Therefore, in order that the child may always become more and more conscious of the contents of its ideas, *i. e.*, obtain perfect clearness, it has to proceed analytically (from the general to the specific) rather than synthetically. In the main points, however, the progress of development of the conceptions, the comprehension, and the language of the child, is also, in our time, similar to the original one, described above, with the only difference, however, that the language already developed facilitates and accelerates the formation and fixation of his ideas. This must be so, as the whole process is based upon general psychological principles. The mental progress of the child consists, therefore, in this: "The child gains gradually in clearness of its ideas in the same ratio as it grows in copiousness of language." Its thought and language become continually more clear, self-conscious, and correct. The ideas received from others, imitated, or formed by its own self-activity, will always more and more become its mental property. It systematizes, connects, and enriches the same from day to day. It is, however, even yet observable in our time, how talented children, in such cases, when either their native language is sometimes not immediately at their command, or words are wanting for certain ideas, will complete the latter by words of their own creation, very often in an ingenious manner, and mostly in harmony with the spirit of their native language. This always steadily increasing wealth of materials for a knowledge of the world and nature, leads finally to the seeking and discovery of those general laws which are the basis of the phenomena of all natural things.

By this, the mental government of man over the exterior world becomes complete. That which, at the beginning, as an overpowering chaos confused and almost crushed the childish soul, that which was afterwards perceived only in detail, and later yet, systematized and brought into order and comprehension—all this is now subjected to the government of general law, and thus the seemingly boundless arbitrariness of everything existing is reduced to severe necessity. Now the youthful mind commences to watch the secret laboratory of the Creator, and to anticipate the union of freedom and necessity in the highest *spirit*, guided by his visible revelation. Also, here the perception (apprehension, recognition, knowledge) plays the most important part, which exercises the greatest influence upon feeling and the will, in regard to excitation, as well as in regard to the proper guidance and strengthening of the same. For, if the perceptions are predominatingly *sensuous* and *concrete*, nothing but a *sensuous* feeling and desire can be expected. When, in the imagination, *the idea* predominates, feeling and desire become rational and self-conscious. Our feeling and desire becomes rational if the perceptive powers have reached the point where the insight of the conformity to law of everything existing is gained, where reason induces man to look at everything in the light of higher general laws, and where man is capable of recognizing the harmony of the exterior world with the spirit.

If we are to distinguish and to name the principal periods of the development of the mind of man, upon the basis of the description given of it thus far, it is, above all things, clear, that the development of the human mind progresses from the *simple* to the *compound*, from the *specific* to the *general*, from the *concrete* to the *abstract*, from the *perception* to the *idea*, from the *phenomenon* to the *law*. But, as this very progress has its principal type in conception, as was proved, the characteristics of the several periods of development will have to borrow their designations principally from this aspect of the development of mind.

If we keep in mind the earliest and latest state of mental development (*i. e.*, greatest *want of freedom*, and *dependence* on every external impression, on the one hand, and *greatest freedom*, and *mastery over* the outer and inner world conformably to self-discovered laws, on the other hand), *three stages* or epochs present themselves at once, corresponding with the *childhood*, the *boyhood*, and the *age of youth*.

The first stage (childhood) is the one in which man is yet entirely

under the dominating influence of the external world, and of the charms of the senses. Perception, desire, and feeling are in this period overrulingly *sensuous*. The perception manifests its activity in the formation of sensual intuitions (*Anschauungen*), and in reproducing and combining the same (*Einbildungskraft*). Anything not falling within the circle of the senses, is, for the child, either not existing at all, or it is only approximatively accessible, by means of sensible illustrations (figures, stories, parables, allegories, etc.). The sensation of the pleasant and the unpleasant is, in this period again, determined by sensible impressions. It is thus principally the sensuously pleasant or unpleasant that produces in the child the feeling of pain or pleasure.

In a similar manner are the desires of the child, in this period, directed principally upon sensual things and activities. What is pleasant for its senses, that it wishes to possess or to carry out; what is for them unpleasant or in opposition, that is avoided and detested. It is, however, with all this, not to be denied—for it is of great importance that it should be understood and acknowledged—that there are within the child already, in this period, *other inclinations and impulses* of not purely sensuous nature, which exercise a great influence upon the development and direction of the mental life. Particularly should be mentioned here, the *love* for parents and other persons from which the child receives acts of kindness. It is true, at the beginning, it has also a sensuous element; but soon a higher nature is observable, which might even make the child capable of sacrifice for those which are the object of its tender love. It is the sunbeam of an inner life which attests the higher origin of the soul of man. It contains heavenly light and fertilizing warmth for the life of feeling, and is thus, for education, of incomparable value.

Another impulse of a higher nature is the *conscience*, which awakens also in this period. For it is not something that is made, formed, or acquired; but it is likewise a necessary product of the peculiar powers of the mind of man. *Conscience* is an involuntary direct perception, that an exertion, a desire, an action, is in harmony or in discord with that which has been recognized as corresponding with a natural law of our spiritual nature, and which has, therefore, been recognized as being good and praiseworthy. It is thus an interior monition which makes the one who has done right feel that he is in harmony with himself; and the one who has done wrong, feels, in consequence of it, that he is in hostility with himself. The first beginnings or intonations of conscience correspond, as a matter of course, as yet with the mental dependency of the child. It is not

yet conscious of the conflict in its own breast. The judgments of others—of its parents—are as yet its law. Thus far it has not been disquieted by discord with itself, but with its leaders, and the models placed before it for imitation. Its moral centre of gravity lies yet beyond itself. The authority of its parents is yet acknowledged, an authority afterwards assumed by its conscience, as the voice of an invisible judge. The involuntary inner monition, that its actions are not in harmony with the will and the laws of its parents, disquiets its conscience. But even here, the external leads by degrees to the internal. The place of the parental will will be assumed by the law slumbering within itself, awakened by the voice from without. With the awakening of its self-consciousness, the child will always understand more clearly that, by a violation of its inner moral feeling (law), it comes not only into an unhappy conflict with external authorities (such as parents, etc.), but also with itself, *i. e.*, with its own moral being, which is destined to imitate the Divine.

It is self-evident, how highly important the strengthening and proper guidance of this consciousness of right must be for education, as it contains, at the same time, for every man, the only secure, direct restoration of the harmony between virtue and happiness.

The *second stage of development*, corresponding with *boyhood* (commencing with about the seventh year), strips off gradually the shackles which were put on the child by external impressions, and brings the always growing spiritual strength into a certain equilibrium with the external world. It is, then, the stage of development of the awakening understanding which opposes the external power of sensuous impressions with the internal power of comprehension and the sense of order. The exterior world is the material out of which the boy forms more and more self-actively his own world of ideas. He is, indeed, borne and carried on by the powerful stream of sensuous impressions, but he no longer follows this outer attraction without a will of his own, but only gradually, like a skillful swimmer, who uses the waves as a bridge, in order to reach his self-selected aim. It is consequently the *idea* which presents in this period the most important force involved in the mental development. It is the idea which ripens the perceptive powers, and elevates the activity of the will to well considered, cautious decision.

The *third period of mental development* (*the age of youth*, beginning with about the fifteenth year) generalizes the *idea*, investigates everywhere the conformity to underlying law, and recognizes the law itself, *i. e.*, it is the stage of rational thinking (*rationality-Vernunftkenntniss*). Arrived thus far, man becomes capable of

subordinating also his will to the control of reason. Man elevates himself in this period upon a standing point from which he holds free sway over the exterior world. This is done partly by the *idea* (*Vernunftbegriff*), partly by the *ideal* (*Vernunftbild*). The fundamental power of the former is *reason*, i. e., the perception of those general and fundamental laws underlying the phenomena. The fundamental power of the latter is *fancy* (*Phantasie*), i. e., the power to represent the general rational ideas (*Vernunftbegriff*) in intuitive (*anschaulich*) pictures. This stage of development is, therefore, the period of *reason* and *fancy* (*Phantasie*). The youth endeavors to answer the questions as to the first cause of all things—the “Whence?” the “Whither?” and the “Wherefore?” He attempts to answer them either by syllogisms or through the ideal. The syllogism causes *conviction*; the ideal, direct *satisfaction*, and consequently, *contentment*. The former gives to the will instruction how to reach an aim; the latter directly shows it the aim itself. It is, therefore, no matter of surprise that the *ideal inspires* and *inflames* the soul directly to actions, while, on the other hand, the *idea* alone leaves it cold, by instructing it only about *truth*, i. e., about the harmony of a conception with the general laws of thinking, as they are deeply rooted in the thinking subject.

The *ideal* is the field for *art*. This period of development is, therefore, principally, also the *art age*, i. e., the period of the greatest susceptibility and inspiration for art and its productions, which is particularly manifested in the love of youth for poetry.

All these characteristics of the three principal periods of mental development go on with corresponding changes in the physical development.

The *physical characteristic of the first period* shows itself in the extraordinary growth of the child, and in its bodily dependence on its mother. The growth of the body is, in childhood, the most marked. The child which, at its birth, measures about eighteen inches, and has a weight, on the average, of eight pounds, reaches, at the end of childhood (seven years), more than double the length (about forty-two inches), and moreover five times its original weight; out of which follows, that the functions of digestion are predominatingly active at this period. It is a continual receiving and assimilation of nutritious matter, which is, in this period, predominant among all the bodily functions. The dependence on the mother is manifested by the fact, that the baby receives its food at the breast of the mother, by whom its life also was wholly supported as a foetus. Gradually, it is true, it frees itself from this source of food, and its dependence on the

mother gradually decreases. It is, however, nevertheless an undeniable fact, that the physical and mental prosperity, the whole character of the child through the whole childhood, is principally dependent on the mother, and is in a prosperous or languishing condition, according as this support is good or bad. In this fact lies the extraordinary educational influence of the mother upon children, which cannot be supplied by any other influence.

The characteristics of the physical development in this period are thus similar to those in the mental development, namely: a predominating receiving and appropriating of materials from without, under the preponderating influence of the exterior world.

In the *second period*, the body reaches or attains a certain symmetry in its proportions, and that solidity in the osseous system which enables the boy to resist the exterior world, and fits him for exertion in manual labor. The appearance of stronger teeth indicates a gradually growing equilibrium between external influences and the reaction on the side of the young body, as far as they prepare the body for receiving more solid food, particularly animal food. In the same proportion as the soul takes the external world to itself, and it forms also its physical organ, *i. e.*, the body, out of the most different nutritious matters. Muscles and bones attain almost their permanent proportions. The brain ceases to grow. The physiognomy receives its permanent form. The body, however, possesses thus far not yet that freedom and ripeness which fits it for powerful action upon the exterior world. The powers of generation are yet slumbering. A certain immaturity is as yet in all parts of the body. The latter is, so to speak, as yet a closed bud that will burst open in the *third period, in the age of youth*. Breast and pelvis, as well as the organs of breathing, and the sexual organs, develop themselves perfectly, and often with such rapidity that great caution is needed in order to prevent their development from becoming injurious to the life of the whole organism. It is, therefore, often the case, that just at this period is sown the germ of diseases of the lungs. The development of the larynx, also, the features becoming more defined, the appearance of the beard and body hairs, and of the last molar or wisdom tooth, all announce the attainment of the full size and that strength which gives the self-conscious power to act upon the outer world for human purposes and to the full measure of human accomplishment, although the greatest perseverance in exertions depending upon longer exercise, experience, absence of passion, and discretion, is, as a general thing, the property of a later period in life, *i. e.*, of manhood.

GERMAN VIEWS OF FRENCH EDUCATION.

IN A FRENCH RESUMÉ OF THE SAME.*

There is nothing more injurious to the progress of the human mind than national jealousies. Formerly, France might be accused of being, of all nations, the most disdainful to foreigners, but that fault she has partially corrected. In the arrangement of public instruction, at least, there has been a series of missions, having for their object the study of the system of education of neighboring countries† Our neighbors have not acted in a similar manner, and it is to be regretted, for if works by Frenchmen upon public instruction in Germany and Holland are useful, similar works upon public instruction in France, written by Germans or Hollanders, would be much more so to us. The scarcity of such books gives great value to the work of Mr. Hahn,‡ although it is not official. Mr. Hahn undertook his mission himself, or rather he received it from the chance which made him pass a few years in our midst.

His book proves, moreover, even more than the indifference of his compatriots, how far the German universities are from approving of the French system of instruction. It is difficult to carry severity to greater extent. There is scarcely a point in our system of instruction that receives unqualified praise from Mr. Hahn, and there is not a single one that is not severely criticised. Very frequently, also, he has drawn his information and appreciation only from the enemies of the University

I. The work of Mr. Hahn comprises two distinct parts: one devoted to the exposition of legislation and the state of public instruction in France, the other devoted to criticism, in which he judges, according to its principles, our institutions and regulations. The first part, of course, has no interest for us. As to the opinions of Mr. Hahn upon the merits and defects of our system of public education, as they are evidently those of most of his countrymen, it is well to know them, although it must be regretted sometimes, that they are founded upon superficial observation and inexact information. Mr. Hahn observed hastily a certain number of classes; he took notes hurriedly, collected a few anecdotes, and attached importance to trifles. His criticism very often reminds one of the traveler who judges the complexion of all the women of a country by that of his hostess. Thus he relates that a pupil in rhetoric, with whom he was conversing upon the

* By Ernest Renan, in *Revue des Deux Mondes*.

† The following are among the official reports which have been made and published in Paris on the Systems of Public Instruction in other countries:—Cuvier submitted a Report on Public Instruction in Holland in 1811; Julien, on the Institutions of Pestalozzi in 1812; Cousin, on Public Schools in Germany, and particularly in Prussia, in 1838, and a second, on Secondary Education, in Prussia in the same year; St. Marc Girardin, on Intermediate Schools in the South of Germany in 1839; Eugene Rendu, on Popular Education in the North of Germany in 1855, and in England, and particularly in London, in 1858; Minesen, on Secondary and Superior Education in Germany in 1866; Monnier, on Popular Education in Germany, Switzerland, and Northern Europe in 1866; Bandonin, on Special and Primary Schools in Belgium, Germany, and Switzerland in 1865; Morin, on Industrial and Technical Education in Germany and Switzerland in 1864; and Demogeot and Montucci, on the Schools in Great Britain in 1866.—*Am. Editor.*

‡ *Das Unterrichts-Wesen in Frankreich, mit einer Geschichte der Pariser Universität*, von Ludwig Hahn; Breslau, 1848.

uniformity in the establishments of the University? I think not. However, not to cast upon the government itself a reproach which falls upon it much less than on its adversaries, I must remark that it is especially the fault of the pretended liberal opposition (*der vermeintlich liberalen Opposition der Linken*), if stagnation has become a law of the University, and if equality has remained intact at the expense of liberty. Since the clerical party has begun to demand liberty of instruction the university corps has become, in the eyes of those who call themselves liberals, the representative of modern mind, and woe to the profane hands that dare to touch this holy of holies! In blind zeal against the party who derive advantage to their plans from the profound errors of the University, the opposition think they can do nothing better than deny these faults and cover them with the cloak of their popularity. The right of the State over the education of children is sometimes exaggerated to a Spartan degree the principle of unity of mind in modern societies is extolled in every way and on all occasions; considerations really loyal and right are fatally sacrificed to the needs of controversy." (176.)

What follows surprises us. Mr. Hahn presents, as a useful reform and the first step towards progress, the modification or suppression of the Council of public instruction, and certain other measures which have seemed among us to be entirely innocuous, and which, in fact, have so resulted, These passages show that the author has not fully comprehended the real spirit of French society. Let us be just, however. Mr. Hahn has seen things in our country under a false light; he has allowed himself to be taken by declamations everywhere repeated; he is not, however, an enemy of intelligence. His principles upon the education of the people are a proof of it. "If it is a duty," says he, "for all regimes to give their principal attention to the instruction of the people, this duty devolves especially upon governments which are founded upon the principle of liberty. The truly liberal policy is not ignorant that the diffusion of education is its surest guaranty and firmest foundation. A country that wishes to be free must be enlightened otherwise its noblest sentiments are dangerous to it. If political rights surpass intellectual culture, it is to be feared that the people will allow themselves, in the exercise of their rights, to be drawn into the gravest errors." (184.)

In the appreciation of facts, Mr. Hahn shows himself here, as elsewhere, a severe critic. "The principle of obligatory instruction (*die Schulpflichtigkeit*), in the German sense, that is to say, the rigid duty imposed by the law upon parents, of having their children share the benefits of instruction, is not yet introduced in France. Principles of liberty, badly understood, have hitherto prevented the employment of this means, the only efficacious one for procuring the general diffusion of elementary instruction. A liberalism, not very secure of itself, reposing on false principles, and, on that account, timid and always on its guard against the power of the State, has refused to give to society the right of constraint relative to education. The question was agitated during the first years of the revolution of July. . . . The government was induced to recognize, at least indirectly, the principle of obligatory education but the Chamber of Deputies repudiated it, and the Chamber of Peers expressed the same sentiment, although the most competent members of the two assemblies, and especially the committee charged with the report, had, through the organ of M. Cousin, pronounced very decidedly in favor of universal obligation." (269.) Mr. Hahn thinks that primary

instruction is insufficient, and not widely diffused among us; (268) the position of the instructors appeared to him degraded, and their merits below mediocrity. (337.) The picture which he traces of the education of women, is also one of the saddest. (384.) Would to God that the reality were not sadder still!

II. The part of Mr Hahn's work relating to secondary instruction is the most interesting and best developed. "The University," he says, "in taking classical antiquity for the principal and almost exclusive object of study, has pretended to render an inestimable service to civilization, as well as to the imaginary preponderance of French culture in Europe; it insists, with pride, upon this benefit, in order to sustain the interests of its absolute domination; and yet it is certain that, in the main, it has not the correct conception of the studies proper to develop the scholar. It heaps up to superabundance the classical detail, without vivifying the mass with the leaven of literary spirit; the antique forms circulate daily, and pass from hand to hand; but the sense of antique beauty is profoundly wanting; the student laboriously collects polished stones for building, which never rise into a harmonious edifice; he never passes from a barren exercise of intelligence to the vital nourishment of the whole spiritual man. Everything is restricted to narrow and mean applications. Instead of strengthening the intellectual faculties, instead of a development in which beauty of form would be in harmony with the progress of reason, they acquire only a singular skill in disguising from themselves and others, the emptiness of their thoughts, under a hollow, dazzling and pompous form. They think to preserve and continue the philological traditions of Port-Royal; they promise to the nation fruits comparable to those produced by that vigorous school, a new golden age in literature; but they fail to perceive that of all this classical culture they have seized the husk and not the fruit, so that, instead of elevating the soul, this culture tends but to increase the evil of an age deeply tinged with materialism. A narrow and formal spirit is the characteristic feature of instruction in France; it is not true culture of the mind; it is its caricature."

"If, in the education of youth, it is necessary to preserve to classical studies the pre-eminence which they have enjoyed for centuries; if they are to resist the assaults of a materialism, impatient, and solely devoted to immediate interests, they whose action is almost entirely disinterested, it is absolutely necessary that the true character, the essential advantages of such an education should, first with the masters themselves, emerge from the cloud of a traditional respect, and become a profound conviction. Skeptical society will not be led by vain phrases, against which the first palpable argument of the realists would too easily succeed. We must pardon people of the world for slighting the value of classical education, for preferring for youth the study of modern literature to that of the dead languages, for thinking that they can better understand the master works of antiquity by means of good translations than by a ten years study; all these easy arguments have weight, if we oppose to them only a pretended pedagogy, which does not treat ancient languages differently from the modern, which penetrates less into the mind of the ancients, into the harmonious development of their thought, than a tolerable translation would do, which, in short, rests upon no sound idea of the laws of intellectual gymnastics, upon no deep study of the slow and gradual development of the faculties, such as should result from literary studies.

"We hear repeated, on all sides, stereotyped phrases upon the beauty and simplicity of classical studies, and their advantages for intellectual development; but beyond these phrases, these common-place remarks, we find in the intelligence and practice of the masters, no principle, no guiding star. The study of the ancient languages, from being a means, has become the end of education; from the patient work that it ought to be, it has become a purely mechanical exercise in the course of an entirely artificial routine. Whilst the special advantage of the study of a dead language is its being a practical logic, by the analysis, which it demands, of the forms of the language, and while on that account the question is not, in this first labor, how to banish difficulties, but to learn systematically to surmount them; while, I say, the question is not, how to shorten the route, since, in one sense, the route is itself the end and aim, the whole art of classical instruction in France consists in arriving, as promptly as possible, at an easy comprehension of the authors, or at acquiring an agreeable Latin style, and thus, in eluding all the grammatical and logical difficulties. The grammar thus becomes a collection of practical processes and tricks, founded much more on external analogy than on rational necessity; the example, instead of only illustrating the rule, becomes the main object of attention, the rule serving only to illustrate the example. Translation into an ancient language is much less an intelligent application of the rules, than a mechanical reunion of phrases learned by heart—a blind task! In the explanation of authors, they neglect to penetrate the development of the thought, and seek only a suspicious elegance in French style. Let us examine, in detail, the nature of this pseudo-scholarly instruction." (384.)

Mr. Hahn examines, from this point of view, all the branches of our classical instruction. The grammatical studies are of all, the most maltreated; the author inveighs with force, (and here it must be confessed with reason) against the mechanical turn and superficial method of our rudiments, against the "word for word" custom and the "lists of expressions."

He revolts against the "*que's* left out," the "*de's* which can be changed into *qui s'appelle*," and other things of the same kind. He would prefer a philological method, and the substitution of an elementary work analogous to the *Methode latine* of M. Burnouf (more conformed to the German methods), to the artificial and illogical method of L'Homond. This part of Mr. Hahn's work (p. 386-402), is full of observations more or less severe, but always original, and which habit alone prevents us from making of ourselves. The custom of making Latin verses rouses his antipathy against our slightly superficial methods of classical education. He admires those feats of strength and intellect which we expend upon it, but he sees in it only a master-piece of imitation. (393.)

The same reproach, and always for the same reasons, is addressed to our system of recitations, which he accuses of being an exercise purely mechanical, and of no effect in the culture of the mind. If he is more lenient to the Greek studies, if M. Burnouf's grammar receives his eulogiums, while all our elementary books appear to him detestable, it is because he hopes to refer the honor of it to German philology and to the labors of Buttmann and Matthias. "Yet," he adds, "this work appears to the professors too systematic, too pedantic. Everything that is not routine passes in the University for pedantry." (407-408.) Our rhetoric is not any more approved by Mr. Hahn. The programme, assigned to this class, appears to him impossible to realize, considering the weakness of the anterior studies; the direction given to the studies seems to him too exclusively oratorical;

the exercise in Latin and French discourses, appears to him a pure affair of receipts and processes. (410.) He is astonished also, with good reason, that the philological study and the grammatical theory of the French language are so neglected among us. (420.) Instruction in history, such as it is established in our lyceums, finds him less severe; he only reproaches the professors for not proportioning their lessons to the strength of the pupils, and for following the same method in the lower and higher classes. He would wish the whole domain of history to be traversed twice, the first time, as far as the fourth, in simple and easy abridgments: a second time from the fourth, in a more thorough manner. (425.) Finally, philosophy finds in him, by an honorable exception, one of the most impartial judges. Mr. Hahn enlarges upon the nature of this study, and seeks to defend it from the attacks of which it has been the object. His authority deserves so much the more to be regarded, in that he carries, even to affectation, the desire to show his attachment to Christianity, and seems, in every other thing, to resemble, in his manner of seeing, those who have accused our philological instruction of implety.*

It would be tedious, and perhaps useless, to specify here all the general complaints that Mr. Hahn enumerates against our system of secondary instruction. He recognizes in it scarcely any efficacy for the culture of the rational mind, and he thinks, moreover, that such an education is, by its very conditions, the privilege of those in easy circumstances, or even of the rich. That would not be much to be lamented, if this culture was, as he supposes, exclusively directed towards the baccalaureate, or general competition. These two institutions, the last especially, are judged very unfavorably. (370-376, 487.) General competition is, in the eyes of our author, the source of the gravest faults of our instruction, which are imitation, routine, speciality, either in the pupils or the professors. (461.) As to the interior administration of the establishments, Mr. Hahn thinks the hours of labor too multiplied, and inveighs forcibly against the system of rewards and punishments generally adopted. He would suppress, with one stroke, tasks and honorary rewards; but he takes care not to tell us by what he would replace them. (463-500.)

"It is time," says he, in terminating this criticism, "it is quite time, in the interest of classical education, to reform these abuses. In the provinces, still more than in Paris, it is to be feared that material interests will take the ascendancy over a system so insupportable, so faulty; for, in the provinces, the apparent results of the great competition do not blind the eyes. May instruction itself experience a reform! may it admit the elements of an original and independent movement, so as not to provoke a radical reaction, which would destroy all classical culture!" (465.)

III. Family education is judged by Mr. Hahn still more severely than the instruction given by the University. Family education appears to him simply impossible, since the family no longer exists in France. These are his words on this subject; it is useless to remark on their exaggeration:

"Modern France no longer recognizes the family. In order that paternal education should be desirable and fruitful in results, the domestic relations

* P. 429 and following. Mr. Hahn has placed, at the end of his work, a sketch of the history of the controversies upon liberty of instruction. He leans, generally, toward the party least favorable to the University.

must be re-established in their normal state, and in the intimate union and sincere love of the parents, all the germs of virtue and holiness can be the object of assiduous culture. But who would dare to pretend that it is so in our day in France? Who does not know that the married tie has, in that country, fallen so low that the knowledge of the duties which it imposes is scarcely preserved, that the individual can hardly be made responsible for his personal errors, because in the infected atmosphere in which each learns to think and feel, he inhales with his vital air, frivolity of feeling and moral indifference? If domestic life is thus attacked by the worm at its very root, who can be astonished that family education has become impossible? The parents see in their children, as soon as they are of an age to reflect, only inconvenient witnesses of their mutual infidelity, and are anxious to get rid of them as soon as possible. Thus colleges and boarding schools are enriched by the immorality of families." (508.)

How does the University perform the difficult task of supplying the place of paternal education? "I believe," says Mr. Hahn, "that it has understood neither the seriousness, nor the grandeur of this task. In the system of instruction we have found a false method to criticise, but much force, and energetic and powerful action; as an educating agent, it is absolutely null. Education in the University is pure discipline. At the first glance all is perfect; the external order is irreproachable; the behavior of the pupils, their punctuality, the regularity of the exercises, leave nothing to be desired; during the hours of labor, silence is maintained with rigor, during the hours of recreation, obscene conversation, coarseness of manners are punished; no symptom of depravity shows itself. In this respect, the University still bears to-day the impress of its imperial origin. Napoleon, who wished to have in everything, unity, order and obedience—who aimed at making France, like one vast camp, know but one will—did not allow the opportunity of giving youth a military training to pass unimproved; the ideal of public instruction, in his eyes, was a severe and almost rude discipline, like that of the soldier. In every exercise, he wished the exactness of the barracks and the field of battle; the order of a college was to be that of a regiment; the pupils had superiors rather than teachers; they found, even among their companions, under-officers and corporals—everywhere the rules of subordination and the prerogative of command. An education more complete, conceived upon more elevated principles, capable of developing the noble faculties, of awakening independence of thought, and giving to each one consciousness of his right, would have formed a generation such as the imperial despotism did not desire. Discipline can never replace true education; discipline can curb the passions, but not direct them by purifying them; discipline cannot maintain virtuous inclinations and good principles, which alone give to moral life a solid foundation, a safe direction; it furnishes no counterpoise against the secret influence of the contagious vices of high society. As soon as the restraint disappears, as soon as the young man enjoys his liberty, he gives free play to his first inclinations, which have not been destroyed, and to his new passions, upon which no moral convictions impose a check." (501.)

"I do not think," says Mr. Hahn, in another passage, "that the greatest number of the pupils of boarding schools become deeply immoral there, nor that they leave them more corrupt than they would have been in the paternal home—but it is certain that they carry from them into the world

no principles, no convictions which can guard them against abuse of the liberty that they are going to enjoy, and against the allurements of the vices of society. In such a system of public education, the morality of the individual has no longer any foundation; we cannot, therefore, be astonished that public manners in France, present every day a more afflicting spectacle. Why should not selfishness, cupidity, frivolity, become the lever of every thing, if no motive more noble, more disinterested, is implanted in the soul of youth? It is said that the University rests upon the sentiment of honor, and thus develops one of the most powerful springs of noble actions; that is an error. The University excites and over excites, it is true, ambitions, which it directs to external results, but not true honor, which considers the intrinsic and moral value of actions in themselves." (510.)

The injustice and partiality of this picture ought not to prevent us from recognizing whatever there is of the truth in the theoretical principles of Mr. Hahn. His errors have their source in the incurable prejudice which he has conceived against the French character. To believe him, public instruction will be null among us until we shall have adopted the science which Germany calls pedagogy. The Germans appear, in general, very proud of this science. (307.) In fact, however, there is in this respect, between them and us, but one single difference; it is that we do not collect under a common and technical name, the excellent writings which we possess upon education, besides the treatise on "Studies" of Rollin. It is true that the instruction of our schools, being subject in its smallest details to a superior authority, this science, with us, has been forced to change into ordinances and regulations; the numerous decrees emanating from the ministry of public instruction compose our real "pedagogy." We may say, if we wish, that the problem of public instruction has been placed among us in conditions in which it cannot be solved. We cannot say that the question has not been discussed with order and perseverance.

Mr. Hahn's work was finished and almost entirely printed before the end of the month of February, 1848. In a second preface, dated April, he expresses his thoughts upon the changes which he thinks ought to be accomplished in the system of instruction. But let us not flatter ourselves that we shall find him more indulgent here. It is in the faults that he has most severely criticised, in the principle of equality and centralization, in the external discipline, in the soulless mechanism that he finds the University in harmony with the new régime, and wishes to accord it some chance for life. (9.) Evidently, Mr. Hahn, while he lived among us, was under the influence of a great antipathy against our spirit, and did not wish to understand us. He descends almost to silliness by repeating, again and again, that in France we know no other motive than interest. Alas! selfishness is of all times and all countries.

There is in this manner of declaiming against real evils, a sort of optical illusion, very dangerous in history. The present age appears only through a cloud of dust raised by the tumult of real life; it is difficult to distinguish in this whirlwind, the pure and beautiful forms of the ideal. On the contrary, this cloud of little interests having fallen, the past appears to us grave, severe, and disinterested. Seeing it only in its books and monuments, in its thought, we are tempted, in a word, to believe that formerly they did

nothing but think. It is not the bustle of the street which passes down to posterity. When the future shall see us disengaged from the tumult which bewilders us, it will judge us as we judge the past. The race of egotists, who have feeling for neither art, science nor morality, is of all times. But they fade entirely away; they have no place in the grand picture which humanity contemplates behind it; they are the noisy waves which murmur under the wheels of the pyroscope in its course, but are silent behind it.

IV. Four years after Mr. Hahn, another German, Mr. Holzapfel,* took up the same subject. The author, placed at the head of the most important schools of Prussia, made quite a long sojourn among us. In the midst of the inconstancy which, in matters of education more than anything else, seems the characteristic of France, an exposition of our system of instruction very quickly becomes antiquated. With us, a law of public instruction has time to come into being, live and die during the time necessary for a German to form a clear idea of it. The system which we find exposed and criticised in Mr. Holzapfel's book, is the old system, established by twenty years of groping and the combined effort of the most eminent men of that age, a system which has since been greatly modified. But though laws among us succeed each other with an often shameful rapidity, our mental habits do not change.

The French ideas with regard to education are the most fixed of any. The University of the eighteenth century, the Jesuits of former times, the new University, the ecclesiastical houses of our own times, have, in fact, but one and the same system, of which it might be shown that the Jesuits were the real inventors, a system founded upon three essential principles. 1st, the separation of the child from his family; 2d, the establishment of large boarding schools, where the exercises are conducted as in a regiment; 3d, a pseudo-scholarly instruction, having for foundation a simply material study of the ancient languages, without any care for depth of penetration, without criticism, without true philology.

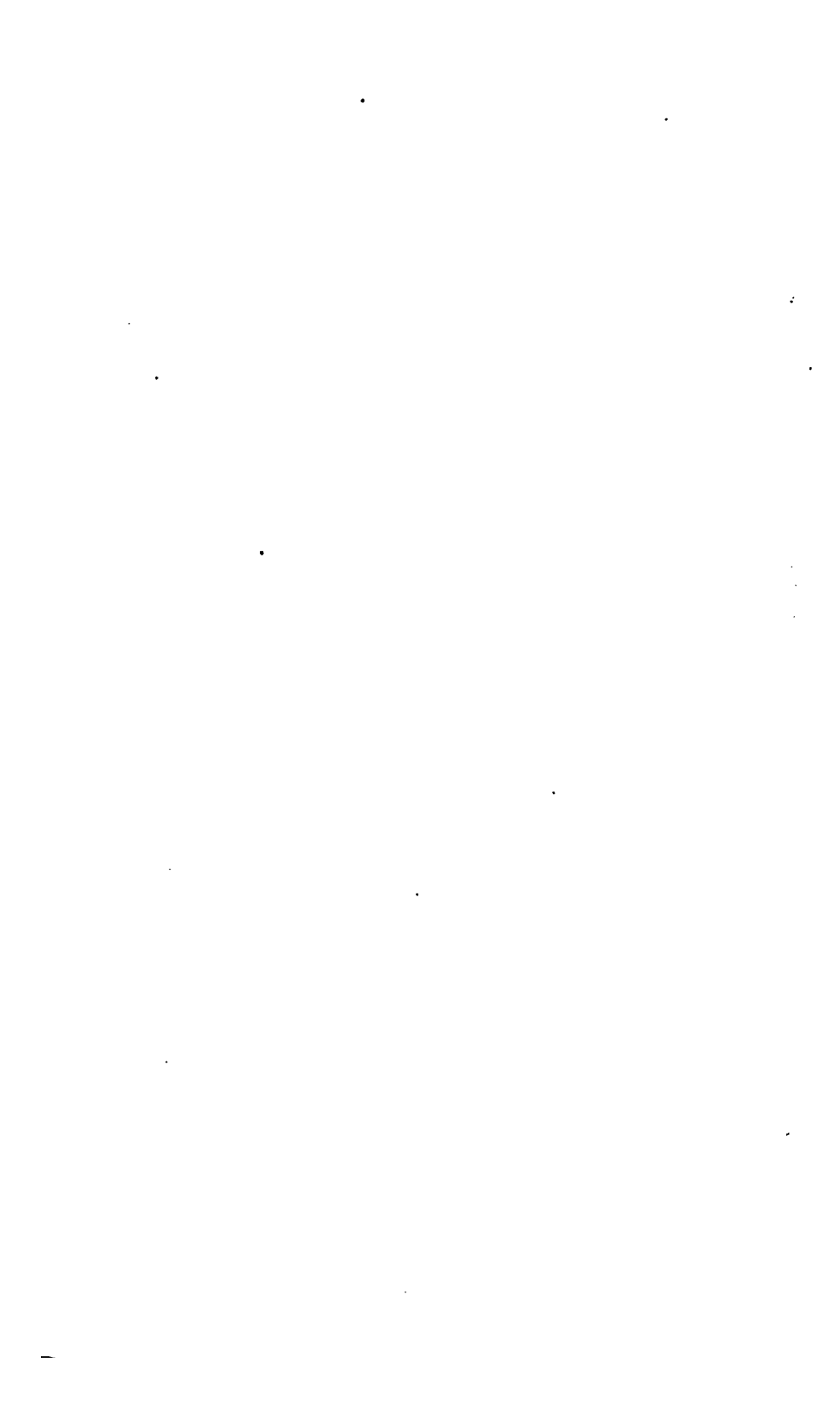
The opinions of Mr. Holzapfel upon our general principles with regard to education, (principles which the new organization is far from having weakened,) resemble those of Mr. Hahn. Mr. Holzapfel only points out differences between our system and that which exists in Germany. Most of the criticisms which he makes apply to the very constitution of our society, and if they apply to real evils, these evils may be regarded as almost incurable. Thus what offends him above everything else, is the almost absolute want of family education, that sequestration of the child, that habit of keeping him away from the influences which alone can form in him habits of sweet morality. In view of the strange precautions taken against the action of the nearest relative, in view of the haste with which the parents rid themselves of the education of their children, as of a perplexing and difficult task, Mr. Hahn and Mr. Holzapfel conclude that our society must be entirely corrupt, and that the most sacred ties are irrevocably broken. The system of boarding schools, unknown in Germany, seems to them full of grave inconveniences. What would they have said, if they had learned that

* *Mittheilungen über Erziehung und Unterricht in Frankreich*, by Dr. R. Holzapfel, Berlin, 1853.

there was one day to be a question of rendering this system almost obligatory, and reducing everything to what they call the system of the barracks? This military organization, which gives to our colleges the aspect of a cavalry quarter, is what most offends Mr. Holzapfel. He does not understand how noble characters and original minds can proceed from this system. He thinks, moreover, that all this is in conformity with the character of our nation, and that the free development of the individual must not be sought in a country which has never comprehended but two things: to command and to obey.

As to our rules of public instruction, considered in themselves, and independently of the system which they serve to realize, Mr. Holzapfel reproaches them with being too numerous, too uniform, and with leaving nothing to the personal initiative of the professor. Two Frenchmen who have received the official instruction of their country—one in the extreme North, the other in the extreme South—find themselves face to face with each other, as fellow-students, and if they were to recite a piece, one could continue the phrase which the other might have left unfinished. In this country, perfection is thought to be attained, when the administration can tell, at a given hour, what the professor of a certain class at Lille and at Perpignan is doing; and this, because the regiment has always been taken for an ideal. Mr. Holzapfel is not less shocked at the suspicion in which the rules seem to keep pupils and professors; at that perpetual vigilance to prevent abuses, the bare idea of which offends the imagination, as if it was supposed that the thoughts of both are always turned towards evil. The institution of public competition and our methods of emulation, also find in him a very severe critic. In his eyes, this is a consequence of the tendency of the French mind to make the motive of glory and vanity prevail over that of conscience and duty.

We see that Mr. Holzapfel is, in general, a severe judge of our institutions and our national character. But his is an enlightened spirit and one without passion. Serious men prefer the criticisms of such judges, even if they are exaggerated, to the flattering eulogiums which we bestow upon ourselves, in order to make us blind to our own faults.



THE GERMAN REFORM SCHOOL.*

CHARACTERISTIC FEATURES OF THE REFORM SCHOOL.

THE German Reform School is of recent origin, and belongs to a class of institutions, which, however they may otherwise differ, agree in this: they deal with a portion of the juvenile population whose education, from whatever cause, presents peculiar difficulties, and who, without some special aid in this direction, would become dangerous to society. These institutions claim, therefore, not merely an educational, but an ecclesiastical, and political interest. They attack, at its very root, a great social evil, which is slowly eating away the life of the nation, and, for that reason, rouse the most active interest far and wide. We are accustomed to designate the class of youth referred to, in general terms, as "depraved through neglect." But this term, although frequently applicable, is far from being universally correct; for we often count among such institutions, Children's Homes, Orphan Asylums, or Institutions for the Education of the Poor; and we must own that these establishments admit occasionally depraved youth, and thus act as a preventive of such depravity. The admission of the depraved is not the special purpose of these institutions, as their names and essential characteristics show. No one will assert that a child is corrupted, or will become so, merely because he is an orphan, or poor. The term "depraved through neglect" does not even apply to the inmates of Houses of Correction; for these should receive such children as have proved unmanageable and degenerate through certain influences and circumstances, and in spite of all the care of their fathers and mothers. There are many parents so afflicted with perverse children. They are found in all substratums of society—in the higher, quite as often as in the lower classes. When these misguided youth come in collision with the police, which happens but rarely, they enter into the criminal stage which is generally ruinous. The Houses of Correction (or Improvement) and the Penitentiaries, are now opened to them. The parents and guardians, despairing of their own influence, seek the assistance of these severe schools, where, kept from evil company, the work of education may be commenced anew, and the incipient criminal saved, perhaps, from the extreme penalties of the law. An unceremonious method frequently employed when the boy is old enough, is to put him

*This paper is drawn up by Rev. John Henry Wichern, the founder of the *Rauhe-Haus*, the model on which the German Reform Schools have been organized.

aboard ship, or send him across the Atlantic. If he belong to the higher classes, and his age, strength, and military education warrant it, he is sent to Bavaria, or into the Dutch army. If too young for such attempts, he is placed in one of the *boarding schools* provided for this class of offenders, or he is put under the care of a clergyman. These experiments are rarely successful. How are the wants of a much larger class to be met?

In every grade of these establishments—from Orphan Asylum to Penitentiary—there are examples of vicious boys, who must be kept apart from their companions, lest they contaminate them. There is the question, then, presenting itself to every parent, guardian, or friend and instructor of youth: how is help to be found for the undutiful, education for the would-be ignorant and naturally perverse, and restraining, yet loving care, for the evil-inclined? How are these children of sin to be kept from temporal and eternal ruin? This need appeals most powerfully to Christian love; and the idea immediately suggests itself of an establishment guided by tenderness—yet maintaining the strictest discipline—which shall ardently endeavor to save those necessarily abandoned by other educational methods; by the family, clergy, schools and institutes. The children here alluded to, are to be considered as pre-eminently the “lost and gone astray,” and as in the most dangerous condition.

The term Reform Schools will fully describe institutions of this nature. The Reform School must be a house of education. It must, by the character of its pupils, and by its aim, be perfectly distinct from all other educational foundations. The Reform School is not a home for little children; it is not an orphan asylum; far less is it a poor-house, or refuge for poor children. The purpose of these institutions is indicated by their names. The Reform School may be recruited from the orphaned and unorphaned, from the neglected and the tenderly nurtured, from the poor and from the rich. For similar reasons the Reform School is distinct from the House of Correction, or of Improvement—and entirely, and in its very nature different from the Penitentiary for young criminals. It is true that the morals of the inmates of the Reform School and Penitentiary do not essentially differ. It is a fact to be remembered, that the pupils of the Reform School often rank much lower, morally, than individuals sentenced to prison for one misdemeanor which came under the cognizance of the law. The pupil of the Reform School has transgressed heavily and often, yet by chance has escaped from justice; while the other may suffer for a comparatively small offense. There are greater transgressions and moral failings which the law does not reach, and can never punish. Notwithstanding the moral similarity of the inmates of the school and penitentiary, there is a great and essential difference between the institutions and those under their discipline. The Penitentiaries and Houses of Correction are established by the State, their object is *punishment by law*. The Reform Schools are founded by Christian love and Charity, their object is not punishment of past offenses, but complete forgiveness.

In the Penitentiaries the inmate is always detained by force. The parents resist this detention; for it is a disgrace to them. On the contrary no judicial sentence keeps the pupil in the Reform School. He is there by the will and authority of his parents, and by the Christian kindness of those

who, as heads of the establishment, take the place of parents. The Penitentiary receives criminals alone. The Reform School is a school of reformation only while it remains without direct relation to the punishing law, while it receives no criminal or person needing judicial correction. The educational principle of the Penitentiary is law; that of the Reform School is mercy. The Penitentiary is, and must be, powerless to educate through *liberty* and the influences of a Christian family intercourse; for the fundamental condition of such education, the freedom of the individual, is wanting. Deprivation of freedom is the basis of their existence and discipline. The free development of the faculties is wanting, the means for which is so necessary for the true training of the child. The officer of the Penitentiary is fettered as completely as his charge. Iron restriction is the very essence of such an institution. But the Reform School, which is founded and nourished by freedom, can only accomplish its object, the saving of children, by guarding jealously the freedom of teacher, pupil, and the whole educational corps. This would be destroyed if the pupil should be obliged to receive a judicial sentence before entering the school, as in the Penitentiary and House of Correction. The children of the school would be pupils no longer, but prisoners.

This characteristic distinction is so important for the correct appreciation of the Reform Schools and their efficacy, that we must dwell on it a moment longer. It must not be overlooked that, in the House of Correction and in the Penitentiary for youthful criminals, religious teaching finds a place, and often exerts an influence. But its power for good is necessarily limited because fettered, and if in fetters free, it is nevertheless overshadowed by the ban of the law, under the weight of which, the inmate struggles without hope of relief. This weight remains, and rightly, even when the child or adult repents truly for the crime committed. The training in the Penitentiary and House of Correction is modified by the law, which governs all with unchanging severity, and whose stern justice never flinches. In all essential points the rule of discipline must differ from that of the free Reform School. If these distinctions could be forgotten, the education would be a contradiction, and the real purpose of these separate institutions would fail. We must insist on this point, in order to distinguish the characteristics of the Reform School from those of a third class of institutions. The public authorities must punish by law. Hence it is observable how little they have been able to effect in the training of children. The State may then welcome private co-operation in its educational aims, resign the sentenced child to the care of institutions founded and directed by private individuals. This has been done extensively during the last twenty-five years, especially in France.

The establishment of METTRAY, so well-known in Germany, with many others of the kind, has proposed to the civil authorities to receive children under sentence. These institutions of France are now harboring and training thousands of the neglected and depraved. Of course, these establishments, filled with children sentenced by law, cannot be considered Reform Schools in the German sense of the word. They are a variety of the House of Correction, in which the intention of the State is fulfilled by private endeavor. We shall hereafter designate them as Free Houses of

Correction. In France they are called after that of Mettray, *Colonies Penitentiaires*.

This class of institution embraces, then: asylums, orphan homes, houses for poor children, *reform schools*, and houses of correction, both private and public. In all, the same elements of destitution, neglect and depravity appear. In the true Reform or Rescue School, depravity is only accidental. In the schools last mentioned, the pupils have become youthful criminals who are under the discipline of law, and who, with their liberty, have lost their place in society. Between these, the free Reform School, the fruit of Christian benevolence, holds a middle place. It is the complement of the Christian family, and aids it in educating the neglected, and saving endangered souls. A diversity in the means of the Reform Schools will naturally result from the attempts to reach the various kinds and degrees of neglect and error. In certain States they will prove in greater or less degree serviceable to country districts, and in others, to the interests of cities and villages. Institutions in cities will differ from those established for smaller towns. Many are filled from among the poor and humble, while others are adapted for the assistance of the higher classes. While most Reform Schools must aim at elementary instruction only, others may prepare pupils for the gymnasium. There will be institutions belonging to and dealing with a certain district. There will be others of wider range and more universal character. Other sub-divisions are possible, directed to the special wants of a certain class, for vagrants, for fallen girls, etc. Various as these establishments are, they are alike in this, viz.: they are organized like a family; they work for the improvement of those under their care as a Christian home may work; and they are based on the principles of humanity and benevolence. As the object of these institutions has been recognized as that of the reformation of the young, they bear the name of Reform Schools, or Reform House. Most of the German *Rettungs-Anstalten* are known by their special locality; as Beuggen, Düsseldorf, Tempelhof, Lichtenstein, Castle of Arenberg, Rauhe Haus, etc. A professed enmity to such names, though really to the spirit of the Reform School, has led to the adoption of other designations. The institution of Bremen is called, *Ellener Hof*; that of Lubeck, *Fischerbuden*; of Celle, the *Liner House*; the establishment of Rostock bears the name of *Geledorf*; that near Reval, *Antonsburg*; the one near Flensburg is called, *Martin's Foundation*, etc. In Russia these institutions are termed, "Houses for Poor Children." In France they are known as "Colonies Agricoles," further designated by their location, as Mettray, St. Foy, Oullins, etc. In America they are called "Farm Schools." In England, where great activity is shown in this field, they are known as "Reform Schools," or "Houses of Reformation," "Rescue Societies," "Refuges," etc. They translate the German designation by "Reformatory," or, quite incorrectly, by "House of Salvation."

We do not intend to treat the subject of Reform Schools exhaustively; but only to point out their characteristics, and though we may glance at the institutions of other governments, we shall mainly direct our attention to those of Germany proper, and the adjacent countries, German by their language.

The main difficulty of the subject lies in the absence of a literature.

The only comprehensive treatise is that of Pastor L. Volter, which treats only of Wurtemberg.* The work published by J. K. Zellweger† offers much satisfactory information, but nothing bearing on the present article. The annual reports of these institutions alone remain to us, and these are of slight literary value. It is an evidence of the progress of the subject, and the interest it excites, that Prof. Palmer, Dr. Stoy, and the publications of the Rauhe-Haus, discuss the principles underlying these schools; but a full historical and scientific treatment can only be had after a more extended appreciation of their social importance and influence, when greater attention is paid to their plan and method of management, by the friends of education.

II. HISTORY OF GERMAN REFORM SCHOOLS.

The first provision of this kind was made in those Protestant cities of the Netherlands, in which the reformation in the church was succeeded by a political and social transformation. This struck at the root of those abuses that had increased under a vicious treatment of the poor, and by that system of street-begging, allowed and encouraged by the Catholic church. The establishment of new workhouses at Amsterdam, Leyden etc., was rendered necessary by the legal prohibition of vagrancy. Many of the cities of Northern Germany, Hamburg, Lubeck, etc., followed this example. Energetic measures were taken against young thieves, who were now placed under the care of the magistrate, and received religious instruction.

It is important to notice that every workhouse or poorhouse was now furnished with special departments, in which children, obstinately disobedient to parents and teachers, were subjected to training. James Doepler gives some valuable information with regard to this subject in his *Theatrum Penarum* of 1698. The boys in these establishments were employed in mechanical work. Parents could send hither all wilful and wicked children to be treated for their mischievous propensities. If the parents paid the board of their sons, the boys were put in certain rooms, and not required to work. Afterwards, the orphan homes, originated by A. H. Francke, offered similar aid to neglected children.

But in many places the object of orphan homes has never been strictly kept in view. For instance, the large Frederic Orphan House of Berlin, which at the close of the year 1865 contained 1,531 children, admitted from 1850 to 1860. Fifty-seven per cent. of these were not orphans at all, but were received because their parents were either ill or vicious. Out of 2,915 children received in ten years twenty-eight per cent. had been abandoned by their fathers and mothers. In the year 1857, the number of these forsaken children reached 600.

In the Poor Houses and Orphan Asylums of other cities of Germany are found many such abandoned boys and girls. The great number of children of this class, collected in the smaller Work and Poor Houses of the kingdom of Saxony, Holstein, etc., will soon demonstrate the necessity of establishing Reform Schools in connection with the Poor Houses; for to bring these

* *Geschichte und Statistik der Rettungsanstalten für arme und verwahrloste Kinder in Wurtemberg.* Stuttgart, 1845.

† *Schweizerische Armenschulen nach Fellenberg'schen Grundsätzen.* Troxen, 1845.

children into the society of drunkards and vicious persons sent to these places, can only result in their total depravity. Many establishments of the kind were formed at the close of the last century, when the state authorities issued stricter police regulations against beggars and vagrants, and when the charities of the public became more completely organized. The punishment of petty crimes has brought the young offenders under severe control; and a great number of Houses of Correction have sprung up in states and cities, under the direction of the government.

Many private establishments have also been founded from motives of benevolence. They still exist in Germany, Switzerland, Scandinavia, in the German provinces of the Baltic, and in Belgium (since 1848), in France (1818), England (1840-1850), in Holland (1818), and in North America. They bear various names, but all have the same object, the care of neglected and depraved children. This educational movement is characteristic of the latter part of our century, and is still increasing. In the center of the long line of our modern institutions stand the Reform Schools of Germany.

It is impossible to enter on the history of these institutions without speaking of Pestalozzi. We must remember how, in the humility of a guileless heart, full of enthusiasm, he labored for the home education of the people, and, since 1775, for the elevation of the neglected children of his country. Nor must we forget that Legrand, the friend of Oberlin, at that time one of the five directors of the Swiss republic, assisted at the foundation of an institution in Stanz, established by Pestalozzi. With all the careful combination of work with instruction in Stanz, Pestalozzi never found room for religious training. From his earliest years he had labored to lessen the miseries of those around him. Their happiness was his sole aspiration. Yet, noble-hearted champion as he was, he stood in the van of battle without the only weapon strong enough to defeat the enemy. In spite of all his loving ardor, a melancholy failure attended his work. In his old age he saw these hopes realized in the first Reform School on the German frontier; but they were realized by others, who, not loving the work more, had yet sought divine aid in their labors. This he himself acknowledged, when, an old man of eighty, he received the greeting of song and flowers from the pupils of the Reform School of Beuggen. He gave back the wreath to the father of the household, the venerable Zeller, his long-tryed friend, with the confession, that he now witnessed the embodiment of his own aspirations. When in 1826 he saw the inner workings of a Reform School, he exclaimed "This is what I wished for!"

With the name of Pestalozzi must be associated that of Fellenberg, of Hofwyl, who, with the assistance of Wehrli, labored to incorporate industry into the training of poor and neglected children.

The distinguishing peculiarity of the Reform School is the union of Christian teaching with primary education. The growing and changing needs of the time are influenced by the power of religion—affecting, not one portion merely, but the entire life. From the very first, all are conscious of belonging to the kingdom of God, and, though in the centre of Christianity, they strive to do the work of Missionaries. This view explains how the idea of a Reform School started into independent being in several places at the same time.

The originator of the Reform School was John Falk, of Weimar, the friend of Goethe and Herder. His first effort was purely original, a stroke of genius. He was Councilor of Legation, when, seeing the devastation and misery caused by the war, he devoted himself to the aid of the suffering. The Duke of Regusa, in 1813, had begun the work of destruction at Weimar. It was just before the battle of Leipsic. After the battle, bands of roving marauders laid the country again in ruins. In one year, the little State of 100,000 inhabitants quartered over 900,000 soldiers. Want and misery reached their highest point. The war soon drove the people from their homes. Pestilence followed. At this time, Falk was suffering great bereavement. One after the other, six daughters were taken from him; and at last, his only son, a boy of nineteen, died. He was childless. Then he resolved to become a father to the orphans of the war. To the care of the wretched and homeless he would now devote the rest of his life. His friend Pastor Horn joined him. They formed a society called "Friends in Need." In 1818, they had found homes for 300 children in the families of farmers and mechanics. Those who were without religious education were assembled in a day school, the confirmed attended an evening school. As the pupils of the Normal School were then needing assistance, he gathered sixty of them, and gave them instruction during the evening in the art of teaching. He took neglected girls as well as boys. They were taught reading, writing, sewing, and housework. In this way Falk became the center of an ever-growing circle of missionary labor. In his work of 1823, he says:—"The principal object of our Society during eleven years, has been the salvation of souls. Not the conversion of the heathen of Asia and Africa, but those of our own, in Saxony and Prussia." His local usefulness reached its height when he determined to build a house of prayer, aided by those of his pupils who were apprenticed to mechanics. The corner-stone of this "Luther hof" was laid by his own hands in 1823. The building was finished by his scholars, at a cost of 15,000 thalers. The money had been collected principally in North Germany and Holland. Falk survived the completion of this work but a short time. He died in 1826, after great suffering, but with full faith in his Saviour. He was fifty-six years old. The closing labor of his life was specially important, by the influence it exerted on Middle and North Germany; but his work was of too personal a nature to last beyond the life of its author. A small Orphan Home at Weimar is all that now exists.

The foundation of St. Martin, a similar institution, established in 1819 by Reinthaler, the friend of Falk, has done great good. Reinthaler took children out of the streets and prisons, and taught them by his "historical liturgical" method. During the first twenty-two years, 3619 children were instructed. But these institutions could not continue. For a time Reinthaler's school stopped. In 1867 it reopened with but fifteen boys. It is now maintained in part by the income of a bequest of Reinthaler (8000 thalers), and partly by the city of Erfurt. King Frederic William IV. presented the fine building now occupied by the school.

In Silesia, several small Reform Schools were created by means of the previous efforts of Falk and Reinthaler. Some of these are still in

existence. There were establishments at Goldberg (1829), Luben (1833), and in several other places. The arrangements made by the Counts Adalbert and Werner von der Rieke, at Düsseldorf, are much more extensive. This work, although simultaneous with that of Falk, was entirely independent of it. The father of the young Counts above mentioned, who died in 1840, aged 80, had established a Normal School at Overdyk, on the Rhine, in 1789, and had founded besides a Society of the Friends of Education. The French occupation destroyed this work, which was, however, destined to reappear in another way. After the war of 1813, great destitution prevailed among the inhabitants of the Rhine country. The highways were filled with begging children. The young Counts von der Rieke, who had inherited the spirit of their father, resolved to provide for the poor. The old Count had left his sons the seminary building at Overdyk. Here a refuge was opened with four children, in October, 1819. The number soon increased to sixty-eight. All good things grew with the institution, which was soon divided into two departments for the older and younger scholar. The attention of Count Adalbert was directed to the large old Abbey of Düsseldorf, near Düsseldorf. He bought it for 51,573 thalers, trusting that God would provide the means of paying for it. In June, 1822, the higher division, numbering forty-four children, was removed to the Abbey. The primary department has always remained at Overdyk. In the course of time, the estate increased. It now includes 493 acres of land. There is a fair capital, with an annual income of 20,000 thalers, partly the contribution of friends. During the early years of its existence, particularly, the sympathies of the charitable in North Germany were expressed by ample provisions of money and material. For Düsseldorf and the "Luther hof" were then the only institutions of the kind in Germany. The Kings Frederic William III. and IV. made large contributions, considerable sums were sent from England, and the Count himself advanced money without interest. Thus, the institution was able to assume large proportions. It has been in existence forty-eight years; 2581 children have been educated, and afterwards have learned a trade. Count von der Rieke presided over the school till 1847, and then entrusted its administration to a Board, of which he is a member. During that year, Düsseldorf contained 179 pupils, 69 of whom were girls. It has greatly increased since. Counting both departments, there are over 300 children in charge, making it the largest Reform School in Germany. The children have rooms in the Abbey; they receive school instruction, and learn to work. The boys are employed on the farm. Since 1859, a seminary for the training of teachers has been added, from which 132 graduates have been sent out. Düsseldorf has been created a separate parish, and thus has corporate privileges.

The third establishment important in the history of Reform Schools, is Beuggen. It is situated at the very southern part of Baden, on the borders of Switzerland, and actually belongs to both countries. The Rev. Mr. Spittler, of Basle, was greatly instrumental in the erection of this school. He also founded the Mission House of Basle. The project was carried out in the midst of the calamities of war. Resolutions were passed

amid the roar of the cannon of the battle field of Kuningen, which struck fear to the hearts of the people of Basle. It was in 1816 that Spittler and Zeller, returning from a visit to the Mission House, resolved to work for the establishment of a Normal School in connection with a Reform School. After several attempts to obtain the necessary funds for the work, the Grand Duke of Baden consented to rent them the Castle of Beuggen, at the nominal sum of thirty florins. Here the first Reform School of South Germany was founded, in which seventy children are now instructed. A training school is connected with it. Many of the teachers educated there have since become the Directors of Reform Schools elsewhere. In 1864, forty-three years after its foundation, 673 children, and 277 brethren had been admitted; while 153 teachers had been sent out from the establishment.

The reformatory work in Wurtemberg was associated with the school of Beuggen. The Reform Schools in connection with the Normal Schools at Lichtenstein (1836) and Tempelhof (1848) are among the larger institutions of the kind. Lichtenstein was founded by the Prussian School Inspector Zeller, after a visit to Beuggen, which afterwards came under the direction of Louis Völter. It is situated near Weinsburg, and includes a Reform School for boys, and another for girls, with forty-six pupils in both. A Normal School, number thirty-five pupils, is carried on with the School for boys. The whole is directed by an inspector. The Tempelhof Reform School, numbering ninety-two scholars, has a Preparatory Department, and Private Seminary for teachers, connected with it; both of which are designed to supply the schools of Wurtemberg. Among the high-born persons who have supported the Wurtemberg schools, we must mention with due honor the Duchess Henrietta.

The institutions of Gustavus Werner belong to this class. There are eight of them: the Chief Home at Reutlingen, with its seven Branch or Associated Schools. These Asylums possess three hundred and twenty-three acres of land, a large industrial factory, with an annual working capital of thirty thousand florins. In 1862, four hundred and thirty-eight pupils were accommodated here, but financial losses have reduced the number to one hundred and eighty-five. Seven hundred children in all have been educated there. In 1867 Wurtemberg contained thirty-two institutions of the kind: twenty-six Protestant, five Catholic, and one Jewish Reform School. These could accommodate 1667 children, and in 1867 actually did contain 1269 pupils. The total number of children received since 1820 is 10,099. There are besides many Societies, whose object is to bring neglected children into Homes, or Schools. All these institutions and societies work under the direction of a Central Committee of Charity, organized in 1817 by Queen Catherine, the foundress of St. Pauline, the first Reform School in Wurtemberg, Stuttgart.

Wurtemberg has done more for reform and education than any other German state. It is strange that the efforts of Protestants here should have ceased in 1848, for the two Schools established in 1858-59 have no importance. On the contrary, the Catholic church has shown great energy. In 1848 it possessed but one Reform School, but now has five, in which about two hundred and seventy pupils are educated. These Wurtemberg insti-

tutions adopt children for the purpose of guarding them from neglect and vice; this is a characteristic feature. The report of the anniversary of 1867 confirms this: The Schools are termed "Institutions for Neglected Children," and they are further distinguished from the foundation of Schönbühlthof, which admits boys from the House of Correction.

The Farm and Reform Schools of Switzerland must be considered together, for they differ only in a few unimportant particulars. From 1810 to 1830, seven Schools were erected. During the next ten years twelve were founded, and from 1841 to 1846 ten more. In 1846 there were twenty-nine schools with seven hundred pupils. Since that time fifteen new institutions have been established, so that Switzerland has now forty-four schools with 1543 pupils. The name of Professor Spleiss ranks first among the early laborers in this field. The "Swiss Patriotic Society" and Baron Wessenberg founded the Reform School at Bächtelen, near Berne in 1839. Berne has fourteen of these institutions, among which are several Schools for Children condemned for crime. Zürich has four, St. Gall four, Lucerne and Appenzell one each. Sonnenberg, near Lucerne, is a Catholic foundation. The School at Oldburg in Argovia is for both confessions. The rest are Protestant.

Reform Schools were established in South Germany in 1848—first in Bavaria, and afterwards at Neuhoof, near Strasburg, and in Baden. The name of Karl von Raumer is connected with the Bavarian schools. He established in 1824 the first Reform School at Nurnberg, under a director from Beuggen. Almost at the same time Pastor Kraft of Erlangen, whose house was a centre of all missionary enterprise, undertook a similar work. Aided by his family, and a student, who had become acquainted with the institutions of Wurtemberg, he founded a Reform School for girls in Erlangen, under the direction of a lady educated at Düsseldorf.

In Bayreuth the dedication of a monument to Jean Paul (1841) induced the Mayor of the city to found a school. The establishment of the Reform School at Neuhoof, near Strasburg in Alsace, is a beautiful evidence of Christian faith. A pious carpenter, Phil. James Wurtz, was the founder of it. He died at the age of eighty-three, in the midst of the children of his school.

In Baden a Society had been formed, with Baron Wessenberg at the head, which formed a Protestant School at Durlach, and a Catholic one in the Convent of Mariahof (1848), each numbering fifty pupils. While the interest in Reform Schools was fast increasing in the south and southwest of Germany, it seemed to be dying away in the north. After Falk's death, in 1826, Lutherhof was suspended. St. Martin's, at Erfurt, and Düsseldorf showed little vigor. At that time the bond of German union was wanting. There was no national sympathy between the countries of the north and south.

Besides the work of reform carried on in Southern Germany, there were some institutions started in Berlin and in some of the provinces, the fruit of political expediency. One of these was founded by M. Rother, assisted by some members of the Berlin magistracy. It is situated before the Halle-Gate, and was first opened in 1825, under director Kopf. The inmates were sent by the Berlin magistracy. The institute contains forty-

eight pupils at an annual expense of two hundred and twenty-three thalers paid by the city. They are under the care of the civil authorities, for it is a kind of Private House of Correction. Parents may send their children here, as in other Reform Schools; but the discipline is necessarily severe. For many years the pupils were employed in the manufacture of screws. For a time the boys, strictly watched, printed the papers relating to the public debt. The scholars are also obliged to work in the house and garden. The institution is divided into two separate parts, and contains in the one sixty-nine boys, and in the other thirty-eight girls. Within the last forty-two years, 1,619 children have been admitted. The capabilities of the establishment will soon be increased, for a new building (200 feet in front, 80 ft. deep) has been erected at a cost of 140,000 thalers. It is furnished with every convenience, with large enclosed play-grounds. The children are divided into twenties. Every "twenty" forms a "family," over which a special educator presides.

It was natural that the example of the capitol should be followed by other places. Many different societies worked to lessen the number of young criminals, which had alarmingly increased. New Reform Schools were organized after the plan of Berlin, at Memel, Frankfort, Posen, Königsberg, etc. Not one has ever equalled the model. This is to be regretted, for through these Schools, communal aid could be given to a large class, who now fall into crime from want of care. These institutions, with the exception of Stettin, disappeared, when the government erected special Houses of Correction for young criminals. Such departments were soon established in Saxony. A House of Correction was founded at Hamburg, 1829. It opened with nineteen inmates. In 1833 it numbered two hundred. There are twelve houses of this class in Prussia, three in Saxony, and one in Wurtemberg, one at Hamburg and one at Bremen.

It would appear as if in the north of Germany the distinct interests of the Reform School proper had become absorbed in those of the communal establishments. This was the more to be feared from the condition of the church at that time. Religious feeling only could call the true charitable school to life. The people were accustomed to contribute liberally to benevolent objects of a more general character. They were not used to denying themselves for the sake of furthering missionary work. A few scattered communes alone made any attempt of the kind. The ground for such labors had first to be won. It was a very different field from that of Wurtemberg and Basle, where the spirit of self-sacrifice had been fully awakened. Still there were many persons who worked on, hoping for co-operative aid, which came at last. Falk and the school at Düsseldorf had much influence on the work, but the great movement began in 1848.

Rauhe Haus.

The success of the North German Reform Schools is closely connected with the history of the *Rauhe Haus*,* which was the first of many similar institutions in this part of the country. The *Rauhe Haus* was in its first

* A full notice of the *Rauhe Haus*, drawn from the annual reports of the founder and the published account of visitors both American and European, will be found in the *American Journal of Education*, Vol. III, 5-603, and in *Barnard's Reformatory School and Education*, p. 18, 107.

inception designed by some of its friends as a House of Correction for the city of Hamburg. It was proposed to take the children from the Work House for Young Criminals, founded a few years before, and put them under the care of the new Reform School; but the leaders of this educational movement introduced an article in the constitution which declared that "the new institute did not intend to fill a vacancy in the public institutions." By this they lost all aid from the city, but preserved that distinctive principle of the Reform School—missionary work among poor and neglected children. In this they were in accord with the directors of the schools of Weimar, Dasselthal and Beuggen. The Rauhe Haus has admitted (to 1867) 783 children, 176 of whom were girls: 688 have been discharged. The number of pupils in 1867 was 139. There were about forty Brothers connected with the establishment, and the entire household numbered 450 persons. New buildings have just been erected at a cost of twenty thousand thalers.

The experience gained in these institutions confirmed the belief in the efficiency of their labor. The great motive power was a conviction of the need of organizing the household into families. For this work individuals must be selected and trained. These were soon known as the Brotherhood of the Rauhe Haus. This Brotherhood represents the various social and religious interests which gradually formed the leading idea of the Inner, or Home Mission, as the object of the whole.

Three points in the Inner Mission should be especially noticed as afterwards becoming important: 1st. The tendency of inner missions to carry out the interests of Christianity by opposing infidelity and worldliness. Proper men were found in the Brotherhood, willing to devote themselves to the work. 2d. The necessity of their independence of those civil authorities who only hinder and restrain the full development. Finally: The complete poverty of the association, and its dependence on God and the charity of His servants. Thus the Rauhe Haus has prospered. Its example has set the same principles working in many similar establishments.

In order to gain a more definite idea of the influence of the Rauhe Haus in this regard, we must consider two periods: First, from the date of the foundation (1838) to 1848, when the system had not been fully developed. This was a period of great difficulties; a time of consolidation, of organization, and of preparation for future action. Every energy was used in assembling, training and sending out Brothers, as the instruments of reformatory education. There was at first great difficulty in finding proper persons. The first were sent by request from Beuggen, in 1834. Of the 1350 Brothers who applied for admission—of whom 460 actually entered the institution—two only were from Hamburg; the others were from the different countries of Germany. Applications for missionary Brothers have come exclusively from those distant countries where the German tongue is spoken and the Evangelical Church is found. The first Brothers were called into the Baltic provinces of Russia, while others found their sphere of labor in the far West of North America. The former became directors of Reform Schools in Mitau (1837), Narva (1838) and Reval (1842).

The Reval establishment in Russia is organized on the plan of the Rauhe Haus. There have been 259 children admitted since 1843; 206 of these have left the school: so that there are now fifty-three children, divided into three families, under the direction of Brother Bauer. A society of Brothers has also been connected with the school, and experienced instructors residing in Reval have undertaken their education. Six Brothers are necessary for the care of the three families. The education of the Brothers is especially difficult here, for a successful teacher in Russia must possess a knowledge of the language, and of the Esthnic dialect as well. Notwithstanding this drawback, thirty-three Brothers have been trained at Reval, and sent out as parochial teachers, organists, etc. They labor in both city and country, and are stationed from St. Petersburg to the Black Sea, and to the boundaries of Eastern Siberia.

The Brothers sent to America in 1845-7 have been followed by many others. They occupy positions as preachers, teachers, directors of Poor Houses, and as founders of churches and schools.

The first field for Reform Schools was offered by the connection of the Rauhe Haus with Switzerland. The Brother sent there returned to take charge of the new school founded by the "Swiss Patriotic Society" at Bächtelen, near Berne. Bächtelen has been organized on the plan of the Rauhe Haus. It consists of four families, with fifty boys, and contains a training school for teachers, with thirty pupils. There is also a farm of 150 acres, which feeds thirty to forty cattle. It has admitted 250 boys since its foundation, 205 of whom have left. Since its establishment twenty-six new schools have been founded; with twelve of them Bächtelen directly co-operated. The Berne Reform School in Landorf, with forty children in four families, admits condemned criminals only. The Victoria Reform School in Kleinweber, near Bau, founded on a bequest of 600,000 francs, contains seventy-two children in seven families. Aarwangen, for condemned children, has forty-five children in three families. There are three other schools in Zurich, Lucerne and Vaud, each numbering 200 pupils, divided into three families. The one in Lucerne is a Catholic foundation. In the other Evangelical Reform Schools the directors (House Fathers) have been trained at Bächtelen. The school of Geneva, founded on the model of the Rauhe Haus, will be mentioned hereafter.

The influence of the Rauhe Haus was first visible in France in 1839. M. Demetz, then a Councilor of the *Court Royale*, now Honorary Member of the *Court Imperiale* of Paris, having satisfied himself that the proper mode of treating the depraved was not known in France, visited other countries, and gained a thorough knowledge of the Rauhe Haus system. Convinced that this was the true method, he returned to France and founded the Reform School at Mettray,* near Tours, over which he still presides.

Mettray was the first *Colonie Agricole Penitenciaire* in France. The plan is much modified from that of the Rauhe Haus. It is divided into families, which live in separate houses. It is a Catholic institution, and contains

* For history of Mettray see Barnard's Reformatory Schools, etc., p. 147-200, and *American Journal of Education*, p. Vol. III. 667-736.

700 pupils. To obtain the necessary assistants, lay brothers are trained like those of the Rauhe Haus. They first assist in teaching the children, and are then sent to new institutions. The success of Mettray has led to the establishment of 411 similar organizations, of which twenty-three are penitentiary schools. All carry on agriculture and an extensive system of mechanical labor.

A Reform School was founded in Sweden by Baron Gyldenrok, after visiting the Rauhe Haus.

While the Rauhe Haus influenced the countries round Germany, and prepared the way for the introduction of its system and principles, Germany itself was for a time comparatively unaffected by its reformatory work. But after 1840 a change was manifest. This was brought about by a more thorough acquaintance with the working of the school, the interest felt in it by prominent men of the time, and its connection with the Foreign Missionary Society. The subject of home missions began to be agitated. A strong wish was expressed to unite with the Hamburg school in working for the depraved. Large and small societies were formed for missionary work, the first of which was at Celle, in Hanover. Between 1843 and 1847, the first Reform Schools of North Germany sprang into existence. Rostock was founded in 1843 by Professors Krabbe and Hoffman and Senator Passow; Celle, by Pastor Hugues, in 1844; Lubeck, in 1845, by Dr. Lindenberg; Bremen, in 1847, by Drs. Treviranus and Post. The directors of these various schools were all from the Rauhe Haus, and followed its plan of family organization. Most of them practice farming with success. The school of Celle led to the establishment of a second one at Schladen, Hanover, in 1852, directed by a former pupil of the Rauhe Haus. In Mecklenberg, through the exertions of Professors Hoffman and Krabbe, aided by many prominent clergymen, a general society was formed, which soon absorbed the special organizations.

Reform Schools were established at Stralsund, Pomerania, in 1847, by Count Krasson; at Rügen, Brandenburg, and at Berlin by Schmidt, in 1847; in Athaldensleben, Saxony, by Von Nathusius. A Reform School was projected in Flensburg in 1833, but established fourteen years later by Volquarts. The New Brotherhood was founded at Duisburg in 1845 by Pastor Fliedner, one of the former teachers of the Rauhe Haus. This school now contains 120 Brothers, and 250 children have been admitted since its foundation; their number was thirty-five last year. A hospital for the poor is attached to it, accommodating twenty-two persons. The expenses in 1864 amounted to 17,000 thalers.

In 1846 the festival of Pestalozzi was the occasion of the foundation of several institutions for youth. Many of these, mistaking the spirit of the reformer, expressed their opposition to decided Christian training. In 1847 a correspondence relating to Reform Schools and Brotherhoods was carried on between the Rauhe Haus and two Catholic bishops of Moravia and Austria, but with no definite result.

The second period in the history of the Rauhe Haus commences with the year 1848. Ten Brothers went to Silesia to help nurse the sick during the raging of a pestilential disease. More than 10,000 children had become orphaned. The Prince of Pless offered for their accommodation the houses

at the Baths of Charkow. The system of family organization was directly introduced under the direction of a Brother. A second institution was established in Warschowitz. Both were intended for those Protestant orphans whose parents had died of the typhus fever. They were afterwards dissolved. The Catholic orphans were taken care of by the orders of Prince Bishop Diepenbrok. It was impossible for the Rauhe Haus to furnish all the assistance that was required. Several new Brotherhoods were therefore founded, viz.: at Züllchow, near Stettin (1850), at Reinstedt in Saxony (1850), and at Puckenhoff, near Erlangen (1851). It was the object of these organizations to train laborers for the Reform Schools. The inspectors were from the theological class of the Rauhe Haus. A few of the schools connected with the Brotherhoods merit a more particular description.

The institution at Züllchow is under the direction of Gustavus Zahn, the poet and author. In 1865 the Brotherhood had eighty-nine regular inmates, twenty-nine of whom are now working in different educational establishments. The Reform School founded in 1831 discharged the girls in 1847. In 1864 the whole number of children received was 412. In 1850 the inmates had numbered thirty-nine. At this time about sixty pupils are assembled in four families. A fine garden of fifteen acres is cultivated, and a small farm with twelve cows is taken care of by the scholars. They are also employed in making plastic representations of biblical history for Christmas, and in the sale of religious pamphlets. A hospital, belonging to the order of the Knights of St. John, is united to the institution. The Brothers of Züllchow attend to the sick. The Provincial Institute for Idiots is also under their care, with a special director. The appropriations for its support amount to 11,000 thalers per year. Its situation and extent make it the center of all reformatory enterprise in Pomerania.

The Reform School and Brotherhood at Lindenhof near Neinstaat, which was reorganized under Nathusius in 1850, were at first conducted by assistants from the Rauhe Haus. They are now directed by Dr. Hardiland, formerly a missionary to Borneo and South Africa. The number of boys admitted to the Lindenhof from 1850-57, were 255. Two hundred left, so that the number of pupils is now fifty-five. There are six brothers in the home. Ten of the forty-six regularly graduated brothers, are directors of Reform Schools, while six are assistants. Sixteen work at a trade, four are assistants in asylums for the blind, others are teachers and foreign missionaries. The annual expenses of the institution amount to six thousand thalers.

The Reform School for boys recently founded (1851,) at Puckenhof, near Erlangen, which is connected with that school for girls previously established by Pastor Kraft, has also a Brotherhood joined with it, under the direction of men, educated in theology. This institution enjoys the patronage of the university of Erlangen, but has had but few students up to this time. The Reform School numbers thirty-two pupils, eighteen boys and fourteen girls. The whole number of inmates is forty-five. Annual expenses of 2500 thalers are paid by free contributions.

The Protestant foundation of St. John, near Berlin, is an agricultural branch of the Rauhe Haus, under the same director. It numbers one

hundred inmates, including twenty-four brothers. It owns 120 acres of land, and is provided with excellent buildings. Neglected children are received, and even those needing especially careful management. It forms an independent parish, with about 10,000 thalers revenue. During the last three years over 60,000 thalers have been spent for new buildings.

A French Brotherhood was established (1865,) near Geneva, by Dr. Bertin. It is under the direction of a French clergyman, M. Tophel, and has a Reform School for boys connected with it.

The accompanying table (A) exhibits the gradual development of the Reform School of Germany.

PROGRESSIVE DEVELOPMENT OF GERMAN REFORM SCHOOLS.

COUNTRIES.	1813-30	1831-47	1848-57	TOTAL.
1. Saxe-Weimar,	1	.....	.....	1
2. Prussia,				
(a) Province of Prussia,	3	2	19	24
(b) " Posen, . . . . .	.....	1	5	6
(c) " Silesia,	1	6	24	31
(d) " Pomerania, . . . . .	.....	3	28	31
(e) " Brandenburg,	1	1	35	37
(f) " Saxony,	1	2	15	18
(g) " Westphalia, . . . . .	.....	.....	13	13
(h) " Rhine,	1	1	10	12
(i) " Schleswig, . . . . .	.....	.....	1	1
(k) " Holstein, . . . . .	.....	.....	.....	.....
(l) " Lauenberg, . . . . .	.....	.....	.....	.....
(m) " Hanover, . . . . .	.....	2	4	6
(n) " Hessia, . . . . .	.....	1	2	3
(o) " Nassau, . . . . .	.....	.....	3	3
Catholic Schools, . . . . .	.....	.....	9	9
3. Wurtemberg,	7	19	6	32
4. Baden,	1	2	12	15
5. Hamburg, . . . . .	.....	1	.....	1
6. Lubeck, . . . . .	.....	1	.....	1
7. Bremen, . . . . .	.....	1	1	2
8. Mecklenburg-Schwerin, . . . . .	.....	1	.....	1
9. Mecklenburg-Strelitz, . . . . .	.....	.....	1	1
10. Hesse-Darmstadt, . . . . .	.....	1	2	3
11. Bavaria, . . . . .	.....	3	75	78
12. Kingdom of Saxony, . . . . .	.....	.....	17	17
13. Lippe, . . . . .	.....	.....	1	1
14. Bernburg, . . . . .	.....	.....	2	2
15. Reuss-Schleiz, . . . . .	.....	.....	1	1
16. Reuss-Greiz, . . . . .	.....	.....	1	1
17. Anhalt-Cöthen, . . . . .	.....	.....	1	1
18. Oldenburg, . . . . .	.....	.....	1	1
19. Brunswick, . . . . .	.....	.....	1	1
Total,	16	48	290	354
In Switzerland, . . . . .	.....	.....	.....	44
Alsace,	1	.....	1	2
Russian Provinces, . . . . .	.....	4	.....	4
Total,	17	52	291	404

In this table three periods are distinguished, viz: The data of the establishment of the first Reform Schools, between the years 1813-1830; their introduction into central Germany, between 1831 and 1847; the efforts of the inner mission after 1848. The total number of Reform Schools, given as 404, is probably greater, as those of recent erection could not be added for want of reliable information. From annual reports we learn that one half the institutions of Germany number 5,235 pupils; the total number in 404 schools may safely be estimated at 12,000. The average cost per pupil is variously given at fifty to one hundred thalers. At the smallest estimate of fifty thalers, the yearly expense would amount to 600,000 thalers, which is contributed by the benevolent.

Societies in aid of Reformatory Education have not been specially mentioned, yet a few words may be added with regard to them. One hundred and twenty-six children were taken care of during 1863, by a society of Baden. In Wurtemberg there are eighteen such societies, besides that of the ladies of Stuttgart. The Educational Societies founded by Pastor Brain at Neukirchen, (1850,) have labored with great success. Each of these societies has its special agents, generally young clergymen, who visit christian families throughout the country to induce them to take charge of neglected children. The society of Neukirchen provides for 132 children, 117 of which are in 100 families in the district. There are similar societies at Eberfeld, with 148 children, and Barmen, with 86; also smaller societies at Romsdorf, Solingen, Schmelm, each providing for 12 to 30 children. All these societies in Rhenish Prussia, maintain from 450 to 500 children, and when those in Baden and Wurtemberg are added, the number swells to 12,000. This seems a great result of the labor begun in 1848, and is greater yet when we consider the progress in other countries.

In England alone, 291 institutions of this class were founded between 1840 and 1850, containing nearly 23,000 pupils, and expending annually about £289,000. The Ragged Schools are not included in this estimate. In 1866, there were 1168 of these in London alone, containing 41,291 pupils, taught by 3,241 teachers, the greater part of whom received no compensation for their labors.

The results in Germany are the more remarkable when we consider how the revolutionary feeling of the time predicted the certain downfall of all Christian schools. This spirit was so violent that, in France and Switzerland, the populace demolished the buildings belonging to the institutions, and similar outbreaks were feared in Northern Germany. But now a firm faith in God, and in the blessings attendant on His service, awoke. The languishing schools revived. Hundreds were established, and grew prosperously. It was then said that reform was a fashion, which would soon pass away. But in this noble work of educating and caring for the bodies and souls of the neglected, all classes united, old and young, men and women, rich and poor, peasant and citizen, servant and princess. Societies, communes, governments, all worked together. Private persons opened their houses and princes their palaces to receive the children, and accustom them to the life of a christian family. Fearful pictures of sin did not appal them, but only incited to fresh acts of

charity. All gave what they could for the building of Reform Schools, some their hard-earned pence, others thousands. The very poverty of the institutions gave them a strong hold on the hearts of the people.

King Max of Bavaria, in a decree of Nov. 20, 1851, expresses his pleasure in the establishment of Reform Schools in various parts of the Kingdom. He thinks that their unrestricted management is an essential feature, and that the State should only aid the administration and progress of the organizations at certain times. A Catholic priest of Bavaria, who read one of the publications of the *Rauhe Haus*, was induced to found a school on its plan. The united efforts of both Catholic and Evangelical Churches, resulted in the erection of 75 Reform Schools in Bavaria. In Baden, 15 schools were organized. The northern provinces of Prussia began the work with success, which has been shared by Saxony and other lesser states. The great missionary work of the 19th century has not reached its consummation. Indeed, it has scarcely been begun in many places most in need of it. Obstacles exist everywhere, chiefly resulting from that deep national struggle for belief in revelation. For this reason, the leading principles of the work of Reform should be presented in detail, as clearly as possible.

III. PUPILS AND THEIR CLASSIFICATION.

The work of each institution must be simplified as much as possible. Elements must be classified; conflicting ones removed, those that agree brought into distinct departments. This limits the work of each institution, concentrates its power and divides the labor into separate groups, thus forming an organized system.

(1) The first question to be considered is that of the religious denomination of Reform Schools. We may regard them as independent Christian enterprises, belonging to some particular Church, or as confessions of a certain faith. They are in this way distinct from the houses of correction belonging to the State, in which religious differences do not receive much consideration, although within a few years, divisions have been made as in the Reform Schools. There is now but one mixed Reform School in Germany and Switzerland. In Baden, the Archbishop insisted that there should be a separation of faiths, and that the Roman Catholic portion should be submitted to his authority, but this was not done. It appears that the Roman Catholic Church has taken hold of the education of the neglected children most zealously, but we know very little of their views and plans in the matter, owing to the want of reports. Dr. Hirscher's treatise is therefore an interesting authority. He describes the Reform School as a penitentiary, not as much for punishment as for correction. The rules of the institution must be severely maintained; every error punished. Hard work and hard discipline are indispensable. He considers religion as a means of education which works by fear. The avenging justice of God is strongly brought forward, while the pardoning mercy through Christ is more lightly touched upon. Perhaps these views have not been generally adopted in the practice of the Roman Catholic Church.

In France the schools are of a religious character, but are more Christian than sectarian. This is particularly the case with Mettray, and many of the farm and penitentiary schools founded by private persons.

In 1848, eighteen of the forty-one schools of France were under the charge of laymen, fifteen cared for by priests and friars. Of the 404 German Reform Schools, 324 are Protestant and eighty Roman Catholic.

(2.) Another point to be noticed is, that Reform Schools are needed for both boys and girls. Difference of opinion exists as to the practicability of uniting the sexes in the same institution. The character of the children and the accommodations of the buildings must be taken into account. Many of the schools of Wurtemberg, Baden and Bavaria, unite the two sexes. In some of the establishments they are placed in different divisions under special teachers. Tübingen and a few other schools, the boys and girls occupy different parts of the building. The Roman Catholics have consolidated some of their institutions, but have placed the boys and girls in separate buildings. Heiligenbrunn admits girls only. Four or five only of the forty-four schools of Switzerland are for girls. In Baden, some of the schools are separate in this regard, others not. In the north of Germany, the Reform Schools are devoted to the sexes separately. There were formerly a few instances where the sexes were placed in one establishment, as at Stettin; but this did not answer, and a separation was made. The pupils of the northern Reform Schools are morally more dangerous than those of the southern. The arrangements of the latter organizations would be ruinous in the north. Occasionally, as in the Rauhe Haus, both sexes are in one school, but the construction of the buildings ensures perfect supervision. The newly erected buildings of the Rauhe Haus, were planned in such a way that any trouble is guarded against, and an secret interview is out of the question.

Whenever the children are particularly vicious, the separation of the sexes is generally to be preferred, although the economical wants of the kitchen, washing, sewing etc., make it often desirable to have the girls in the same establishment with the boys. The number of girls in the Reform Schools is much smaller than that of the boys; there are fewer women in the penitentiaries. This is a general fact. But the quality makes up for quantity here, since the depraved girl stands on a lower plane than the vicious boy. The most dangerous tendencies of girls are secret, their cure more difficult. There are not enough Reform Schools for girls, but this is a want which promises to be soon filled. In France, the boys and girls are carefully separated.

In 1862, eight public institutions contained 2026 boys; twenty-eight private schools numbered 4578—total, 6604. In the twenty-three private institutions for girls, were 1718 children; and in the two public schools 160—total, 1878.

(3.) Another question to be considered is the age of the pupil to be admitted or discharged. The regulations of various Reform Schools differ, and the character of the institution is in a great measure determined by their rules. It is not often that children are admitted before the age of eleven or twelve. Before that time, parents will endeavour themselves to

train their children. Some exceptional cases have been presented at seven years; these instances are rare, and difficult to manage. As a rule, the admission should not be delayed beyond fourteen years. The pupil should be under training about three years. Experience has proved that a lasting effect cannot well be produced in a shorter time. The age for admission must not be more than fifteen, or else the school would have inmates seventeen years old, which must be avoided. It is desirable that they leave the Reform School at sixteen, for they would lose the elasticity necessary for those new relations of life for which they must prepare themselves. Girls may be kept later. Accordingly, the Reform Schools generally contain pupils from eleven to sixteen years of age. Boys of the wealthier classes are not usually sent to the Rauhe Haus before the age of fourteen. Their parents delay in fruitless attempts at reformation.

(4) There is also a social distinction among the pupils of the Reform School. We must not forget that these establishments are not Poor Schools in principle, though many poor children are admitted to them. There is undoubted evidence of the fact that the middle and higher classes stand greatly in need of the aid of the Reform School, and will rarely apply for it. Within the last fourteen years, 550 boys from respectable families have been received at the Rauhe Haus, and the question arises, how shall children from these various spheres of life be grouped? It would not answer to bring the children of the higher classes into immediate contact with the ignorant and degraded. It would be very injurious to the pupils to class them together, as if in a penitentiary. The object of the Reform School would be lost. Children from the wealthy and educated classes would consider the necessary change in diet, dress, and social relations as a punishment. Now, punishment is not the principle of the school. It aims to help the pupil by sympathy, forgiveness, and loving care. The school must represent to the scholar his own home as far as possible. There should be the same manner of living and way of dress. The intercourse and demeanor must be that of a cordial and familiar household. The instruction of a pupil in the gymnasium must be energetically continued, that the preparation of the boy for his future vocation may not be hindered. Every agency of moral and mental culture should be employed to elevate the being of the pupil. This cannot be done in those schools in which the arrangements are chiefly made for the poorer classes. A different organization is required. This can be had only in those institutions where the means for the highest scientific and literary training are provided. It is necessary to classify the pupils according to their social rank, and place them in corresponding institutions.

(5.) Mental and physical health is an indispensable condition for admission to the Reform School. An idiotic or epileptic child is a great hindrance. An epileptic inmate may infect the others, and should be dismissed at once. An idiot is a burden, restraining the progress of the scholars. A few years ago, great sympathy was excited for the idiots. Efforts were made to found asylums for them, and the directors of the Reform Schools of Reinstedt and Züllichow were asked to coöperate. The result was the establishment of asylums for idiots, under the supervision of the directors of these schools. The treatment of idiots and epileptics

should always be left to special organizations, and never connected with reformatory work.

The Reform Schools should, as far as practicable, remain independent of the Communes, or they will become private penitentiaries, compelled to admit young criminals. Even if it should seem desirable to aid the State authorities in this way, the least appearance of a penitentiary must be avoided. Success depends on it. These remarks apply to Reform Schools for girls; but an added caution is necessary. The exposed must be kept from intercourse with the specially depraved and fallen, who abound in large cities. The danger for the innocent is imminent; for association with the vicious is fraught with temptation. Many of these children, taking advantage of their connection with the pupils, seduce them also. The womanhood of the girls must be protected, and the fallen on no account admitted to the Reform Schools. There should be Magdalen Asylums, or special institutions provided for them. These are much needed in Germany, and it is to be hoped that we shall soon follow the example of England and Holland, where energetic efforts have been made for the reform of such young persons. London, as well as other English cities has many institutions of the kind for girls under sixteen years of age, some of which contain 100 inmates. One of these establishments has admitted 4000 young girls during the fifty years of its existence; another 700. Some of these institutions are specially designed for the daughters of the better class. One of these received during seven years, 678 girls. One of the Magdalen Societies maintains fifteen homes, and six family organizations for girls not yet prostituted. The excellent asylums erected in Holland, through the exertions of Pastor Heldring, deserve honorable mention. Hence, it appears that the proper pupils of Reform Schools should be classified into different institutions.

We now briefly recapitulate the noticeable points in respect to classification:—

First. Protestants and Catholics must be divided.

Second. The two sexes should be separated.

Third. The age for admission should fall between twelve and fifteen.

Fourth. Pupils must be in good physical and mental health. Idiots and epileptics should not be received.

Fifth. Criminals and fallen females belong to special institutions.

Sixth. Boys from the wealthier classes should be educated by themselves.

Two exceptional classes remain: those young children who may be cared for by private families, and those who belong to the Reform School proper. We will consider the latter class. These children have not led solitary lives; they have been mostly with bad companions, leading or led astray. Their sins are various, petty thefts chiefly, and begging, if belonging to the poorer class. Success in stealing is joined to growing cunning and daring. Resistance to and defiance of authority results. Such scholars are expelled from school. Parents lose their influence, brothers and sisters lament. The child is often absent from home, and at night. Anxiety is increased. Those who attempt to save the lost are insolently repelled. The poor family share their sorrows with their neigh-

bors ; but the rich conceal their grief, to which shame is added, and fear lest an honorable name be sullied. The pastor is consulted, friends offer advice. The child is sent to other schools, but in vain. The evil grows. No means of punishment has been left untried. Perhaps the mother sickens and dies of anxiety, the father of disappointment. The police rarely become acquainted with these facts, and the young delinquents may yet be saved from the interference of the law if a Reform School is open to receive them. Three thousand such applications have been made to the Rauhe Haus from every quarter. How many parents there may be who dare not express their need. How shall the Reform School be organized in order to save such children? Is the Reform School really the right place for them? Would there not be greater hopes of success if a family could be found willing to undertake the training of such a child? We must now consider this question under the following head:—

IV. THE FAMILY, OR REFORM SCHOOL.

Notwithstanding all that has been said and written in favor of Reform Schools, and the fact of the many successful institutions of the kind in existence, there is much to be said for the family. Where the children are simply poor, orphaned, in danger from neglect and exposure, with no pronounced evil tendencies, the family is undoubtedly the best place for them. This is the excellence of the educational and preventive societies on the Rhine, in Wurtemberg and Baden. These Societies also provide for children in Reform Schools, if, in the opinion of the committee, the pupils are not suitable to be taken into families. These are the specially depraved, the class now under consideration. The opponents of Reform Schools declare that such children should be placed in families. But what family would undertake the work. If we exclude those who would receive children for remuneration only, the number of families willing to engage in the work of reformation would be very small. What Christian family would be willing to receive a thieving, unchaste, obstinate, or lying inmate, and give loving aid to one, of whom parents and teachers had long ago despaired? Would it be right to bring such a child among the well-trained sons and daughters of an innocent home? Such experiments have ended in sending the boy or girl to the Reform School. This is undoubtedly the wisest decision.

What then are the necessary arrangements of a Reform School? Educational questions of a similar character have to be solved both by the Reform School and the Prison. The difference between pupils of Reform Schools and the inmates of Prisons has already been shown, yet in one respect there is a strong likeness between them; viz. the morally dangerous element always presenting itself in numbers. The danger resulting from the congregating of children is that the faults of each may be increased by the contagion of others. Such considerations have led to solitary confinement in the case of adult criminals. It would be natural to make such local arrangements in Reform Schools, if the principles of Dr. Hirscher were accepted. He considers Reform Schools as Penitentiaries. The idea of solitary confinement may be carried out in the case of individuals. In *La*

Roquette, Paris, the system is carried out by means of 500 cells. This is the Pennsylvania method, and has been applied to young criminals. They are separated day and night. This complete isolation is by most prison directors considered too severe, and the method of silent work in company during the day is generally preferred.

This plan of silent work in company is carried out in America.* Nearly all the Houses of Refuge and some of the Reform Schools of the United States pursue the method at immense expense; for instance, the House of Refuge of New York, founded in 1824. The building is spacious, and can accommodate 1,000 children. The entrance is by the central hall. There are four wings, each 230 feet long, separated by high outside walls. The children are divided into four classes, and each child bears the number of its class. Each child has its bedroom. Scarcely any labor is done in the open air. The children are together in the work shops. Absolute silence is imposed, not a word or song permitted. Dinner is brought on railways into the central hall, and thence it is conveyed to the different wings. The meals are taken in military order, while the children are ranged each behind the other. Every child is locked up in the evening behind oaken doors with double padlocks. Inspections are made during the night. On Sundays, clergymen of different denominations hold service by turns. There were eleven Houses of Refuge in America in 1860. They were mostly founded by private means, but are aided by the State. Over 20,000 children have been admitted. The average number is 5,000. We shall again refer to *La Roquette* and the American Houses of Refuge; but are these Reform Schools? Although these establishments are in America founded by benevolence to save the erring, they are not Reform Schools. They are, as their titles show, Houses of Reformation, or Houses of Refuge for juvenile delinquents. They receive their inmates from the hands of justice. The law sentences the child for years, or months; he is discharged when his term expires, not when his improvement warrants. The whole treatment is regulated by law. The officers or directors of these establishments are trammelled by restrictions, and there is none of that liberty so essential in a true Christian education. The German Reform Schools are entirely different in aim and organization. The American institutions are Houses of Correction. The "Rettungshaus" is a family, the head of which is a House Father. The members of this family are not bound together by mechanical rules, but by sympathy and kindness. The new-comer is no stranger; nor will he who leaves be forgotten. In this home community that undeniable danger of infection arises, which seems to require such institutions as *La Roquette* and the American House of Refuge. Now the serious question arises how to avoid the danger proceeding from the association together of a number of depraved children. What means must be employed in those cases, where the pupil, because of his vicious inclinations, must be separated from his companions. How must he be guided, how influenced by other means than punishment, bolts and bars, silence and severity? This is a most difficult problem.

The way the child is received into the school is of the greatest impor-

* The statistics, classification and discipline of American institutions are not given with minute accuracy in the following paragraph. *Am. Ed.*

tance. His welcome should be a cordial one. All children have a feeling of dread and uneasiness on being brought to the school, which is often the fault of the parent. The child ought to be told that the House Father knows all his former life. The first meeting should not be a business interview; for by it the new-comer forms his opinion of the person who is to take the place of father to him. The right moment and way must be found to tell the child, that, on his entering the school, all that he has ever done is freely forgiven by his friends, and that God's forgiveness will be given if he ask for it. This divine pardon he must try to gain. Nobody knows, or will know, what his offences have been. Nobody will ever remind him of them, except the House Father, who will never do this, unless he himself makes it necessary. Besides the child must be told never to utter a word to any one about his past delinquencies, and, if he disobeys in this, punishment will follow.

The promise of forgiveness on the one side, and obedience on the other, and the requirement of silence from the scholar, constitute the form of admission into the household. The door of the school is now opened. The child must see that perfect confidence is placed in him. He must be convinced of the affection of his new friends, he must feel that the past is indeed past forever. This is one of the most essential points in the educational method of the *Rauhe Haus*. There are no demonstrations, explanations, or wearisome rules given; but the pupil is made to feel that a new life is open to him. Contrast a trembling boy entering the American House of Refuge, condemned to absolute silence, placed under lock and key, regarded with suspicion and dislike, with one receiving a brother's welcome in the German Reform School. He is full of hope for a better life, and has no dread of punishment. It is easy to see the difference between a House of Correction and the family organization of a Reform School. It is an undoubted fact, that the pupils of the school feel bound to keep their promise of silence in regard to their past lives, and thus one great danger, resulting from association with others, is removed. The possibility of breaking this promise remains; still the instances where previous experiences have been exchanged are rare. Yet a peculiarly skillful supervision over the pupils is necessary. There must be a special care of each, and great attention is given to this. Such supervision can be realized only in a family organization, and all that the true family may do in this regard may be done by the family system of the Reform School.

The next question is, then, how far may the family be represented, or rather imitated; for family life can not in reality be brought into connection with the education of the children. The family is of God's ordination; it exists but once for every man. Father, mother, brothers, sisters can never be replaced by other relations, or compared to them. To claim that any system can take the place of the family, would be to be utterly ignorant of the dignity of that sacred union. So he who holds the place of the father in the school, should clearly understand the extent and limitations of his power.* But each child ought to receive, as he would from his father and mother, a loving personal care, corresponding to his needs and feelings. This is not easy. The affectionate supervision of the school

* The *Haus-vater* should not be called "father."

will always be different from the feeling parents have for their children. God gives the little ones, to love and cherish whom is the parents' joy. The individual pupil does not come to the Reform School as the new-born to the family. He is a half-grown child, and on his entrance at least does not seem worthy of love,—is rather an object of aversion. The possibility that a perfect stranger should love such a child, seems doubtful. Indeed the love of Christ for the sinful is necessary. Love for Jesus' sake must be the living principle of every action of the Haus-vater. The greater this love for Christ, the greater is the affection for every child of His. One difficulty in this personal love and care results from the absence of that divine order of the natural family, by means of which the children come one by one, at such intervals that the elder may gradually attain independence, and share the care of the younger brothers and sisters. This gives to the love of parents for their children its individuality. Greater confidence in and sympathy with the elder, greater care and tenderness for the little ones.

The services that children must receive from the family are so great that God has limited the number of them. All the power of parental love is satisfied by this ordinance of God. The law of nature, which is a reflection of the law of God, finds no fulfilment in an educational institute, far less in a Reform School. In such an institution the House Father finds himself surrounded by a group of half-grown children. The difference in their ages is slight, and the change of pupils is constant. There is no cessation in the work of educating, no accomplishment of it as in the family. There the training of the parents ends at last, but the training of the school never ends. The duties do not decrease, as in the natural family, but increase. The responsibility is greater from day to day. Considering the constant growth of educational labor, it becomes necessary to limit the number of pupils. This restriction in numbers makes the resemblance to the family closer. Experience proves twelve to be the proper number, and fourteen or fifteen the exception. As every member of so small a circle can be perfectly observed, it is quite possible, though difficult, to give personal affection to each child. New comers, particularly, should receive every kind and delicate directions. It will also be possible to watch carefully, those who from various circumstances require peculiar supervision.

The second feature of family life to be imitated in our school is the companionship in living, working, eating, added to all the enjoyments and recreations of home. In this way the child soon feels contented and happy in this well-ordered community. The house is such a community in which a regard for persons and things is suitably combined. The child finds himself not alone, but connected with others mutually aiding each other. All are dependent parts of a well-balanced whole. While this community is restrained by its directors, each member feels that confidence is reposed in him. This love and trust, balanced by a healthful restraint, are the necessary conditions of every home, and of societies as well.

If we consider the organization of existing Reform Schools, we shall find that those originating from or influenced by the Rauhe Haus, have

the family system more or less developed. This is the case exclusively in Northern Germany. In the South west and in all the institutions of early date, the pupils are not organized on this basis. This is unfortunate, particularly if the number of children is too great for the powers of the *haus-vater*, and if more is demanded of him than he is able to perform. The object of the institution is unattainable by a large number of pupils. The intimate relations of family life are impossible. Can a better arrangement be devised for these large establishments, and is any change in the organization possible in order to bring the family system into practice? The same question has arisen in regard to the administration of orphan asylums. Education in large masses proved unsatisfactory. The experiment has been tried of dividing the pupils and placing them in families in the city and country. But for some reason the old system has been readopted. We cannot discuss the question of Orphan Asylums here, only we must remember that they are not Reform Schools. These establishments cannot bear the expense of placing the pupils in families. Their protégés must be educated together. Now the question is, whether the children shall be placed in smaller institutions, or the larger establishments adopt the family system, which seems incompatible with numbers. We are now speaking of private Reform Schools, maintained by the liberality of individuals. It could easily be shown that State institutions, or Houses of Correction, in which all classes of depraved children are admitted in large numbers, have not proved successful.

Belgium has taken great pains to establish *écoles agricoles de réforme*, at Ruyssede, Wynghene and Beernhem. Since 1851, these foundations have been under the direction of the excellent Herr Ducpetiaux, Inspector General of Belgian Prisons.*

A more striking example may be seen in the London institutions, where, in 1850, 60,000 children are kept in the establishments of government. Plans have been formed for a radical change. These large houses of correction are the very reverse of the American systems, but demand nevertheless an education of the whole as a whole.

Since the family organization cannot be adopted, there are but two ways open, viz: The institution becomes a school, divided into classes, or it is changed into a working establishment. It is usual to balance the labor and the learning, but the best arrangement cannot take the place of the family system. This seems as yet to be an unsolved problem, which must be decided by means of the Reform Schools. To resolve the larger institutions into many smaller ones does not dispose of the difficulty. Our large cities and great territorial divisions, make great establishments necessary. No one would think it practicable to divide the schools of Hamburg and Berlin, into smaller ones. So the organiza-

*The Belgian Institutions are for both boys and girls, sentenced for crime or beggary. They are under the administration of the Minister of Justice. In 1847, 26,347 Children were on the prison roll, which circumstance caused the erection of the Reform Schools. Ruyssede (1851,) has 500 boys, who are employed on the farm, and at trades, receiving school instruction. Wynghene (1855,) fits 114 boys for seamen. It is organized with the family system. Beernhem (1853,) can receive 400 inmates. The 300 girls are under the care of a Sisterhood. At Ruyssede, a department was formed to fit teachers, but the great expense of the plan rendered it abortive. The pupils are educated as assistants. The result was not satisfactory. A State Institution must conform to circumstances which in a work of private charity do not exist.

tion of the Rauhe Haus was changed. The great mass was divided into smaller parts called families. The children are not classed according to age, improvement or morality. The good and bad, the student, or ignorant boy, all varieties of trade are put together. These families are merely *groups* for the purpose of intellectual and social intercourse and enjoyment. The title given to these groups, 'family,' has been violently opposed, but without reason; for it is not claimed that these little societies take the place of the true family. In order to understand the matter perfectly, we must remember the separate families of the Rauhe Haus, (each numbering twelve,) occupy small houses of their own. The space devoted to them is a garden of sixteen acres. Twenty houses are scattered over it. A separate house for each family is in strict harmony with the system of the institution.

This division of a number of children into several groups, each with a certain independence, may be carried out in various ways. But the plan of division requires care and thought, or else the unity of the classification, and the success of the work may be destroyed. The simplest arrangement seems to be, for children residing under one roof, to divide the building in such a way that each family may have its own apartments and separate entrance. This is done by institutions owning a great building, which could not well be changed for the system of separate houses. The abbey of Düsselthal has introduced this method. In Züllichow, however, a larger house was built in 1850. Its lower story is divided into four parts, each with a separate entrance, dwelling room, one room for the assistant, a bed-room, washroom and wardrobe for each of the twelve boys. This arrangement is considered more convenient than the houses of the Rauhe Haus. The first of these Rauhe Haus dwellings, was built in 1834. It was not intended for different groups of children, but on the increase of pupils, was occupied by three families, in three sets of rooms. The desire for this family system became so strong among the pupils, that for years they have been placed in separate houses, and the arrangement has answered admirably.

The difference between houses and apartments is amount of room. Family life is not the same in the narrow limits of a room or two as in the house with its belongings. The form of life must, however, be the expression of an inner want. Are not the wants created by the surroundings of life? For example, take the tent life of a regiment of soldiers, or the workmen of a factory, whose families live in their own little houses, surrounded by cheerful gardens, and contrast the barracks of a garrison where men live together in rooms, or in a work house, like that described in Schinkel's Sketches of Manchester.

A large institution may undoubtedly have its inmates in one building, with separate rooms, like the soldiers' barracks; but the success depends on the spirit animating the whole. A large Orphan Asylum has been built and organized, after long opposition, on the Rauhe Haus plan; but the fine large rooms are generally deserted, while the children play together in the halls in a way to be entirely avoided in a Reform School. Still this is better than the constant association of large numbers; but the idea is not fully realized as when the little families are so situated that no direct

communication is possible, and where each can live in great retirement; consequently with greater comfort develop their own individuality. While many of the rooms open on one hall, in which as well as on the common play-ground, the children can play together, the separate households have their own play-grounds, their own flower and vegetable gardens. They are like neighbors—distinct yet united; a condition from which pleasant relations may result. This arrangement appears preferable for Reform Schools, for the dangerous elements of the various groups are kept apart, and it is easy to separate those pupils unfit to associate freely with the others. A great many houses may be distributed in this way over one large garden. We add a chapel, the large central buildings, the additional structures necessary for agricultural pursuits, etc., placed at different distances. There are flower gardens, vegetable gardens, an orchard, stable, fields and meadows. It looks like a cheerful German village, with its streets, slight irregularities and apparently undesigned accidental modifications. The arrangement of the Rauhe Haus is on this plan.

It is interesting to notice how the French have replaced the name of village by *colonie agricole*. The plan and object of the *colonie* is easily seen by the outward arrangements. The School of Mettray, and those of similar plan (Zutphen, in Holland), have but one straight street, on each side of which houses are erected at right angles. Its resemblance to the Rauhe Haus consists in this, that the houses are built after the Swiss model, which the founder of Mettray observed on his visit to Germany; but the want of the cheerful picturesqueness of the German village is surprising, although its regularity is greater.

Different in appearance, though the same in principle, is the "Christian Family" at Laforce (Dordogne). Its little dwellings are grouped around a church. The State Institution of Ohio resembles the Rauhe Haus in appearance. A circle of ten houses has been formed around a church, in which all meet for worship. The little village is in the midst of gardens and woods, and bears the name of *State Reform Farm Village*. It is for juvenile criminals. It may here be added that in Russia, Switzerland, and in many parts of Germany, Reform Schools of thirty or forty pupils have been organized into families, with separate houses. In some other places houses are built with projecting wings, which are divided among the different families.

The great want in these isolated organizations is the influence of woman. But the occupants of these separate dwellings are not limited to the surroundings of their homes. They associate at work, at school and at church. There is unrestrained intercourse every day. The experiment has been tried of placing a married pair at the head of one of these little families. There are serious objections to such a plan, and it is found to be impracticable.* Besides, the expense would be greater. There are many

* The Philanthropic Society of St. George (1788) opened an institution near London with twelve children, under the supervision of a married pair. By degrees there were four families thus organized. In one of these divisions were tailors, in another shoe-makers, etc. In 1792 the society relinquished the plan because of the impossibility of finding suitable persons for this position. An entire change was made in the arrangements, by the advice of Mr. Gladstone, in 1849. The institution was transferred to the country. The society rented the estate of Redhill, near London, for the term of 125 years, and erected buildings after the plan of Mettray. There are now five houses, a church and a school. Prince Albert laid the first corner-stone of the establishment.

circumstances to be taken into consideration, some of which may be noticed. The parents may have children of their own, and in a large institution would not a separate organization be required for the training of the fifty or sixty new-comers? The buildings would have to be larger; each house would require a kitchen of its own. Then the question of a suitable director becomes complicated. Not only must a fitting man be found, but the right wife for him. This has been proved to be infrequent. But grant that an excellent husband and wife could always be found, would not their position as head of a family dissolve the unity of the institution? There can be but one head, the House Father, who can never divide his authority and responsibility with twelve others. His influence would be destroyed. No establishment can succeed without this centralization of authority. It is not an inspector and director that is needed for the Reform Schools, but a House Father and House Mother, by whom the character of a house and its inmates can be established. The family with a great number of children becomes sub-divided into smaller groups. It may become very large when the discharged pupils, as men and women, gather families about themselves. If a Brotherhood be connected with the school, the members of which, even when absent in other fields of duty, are always considered as belonging to the institution, then the whole, with its far-reaching ramifications, will still retain the character of a family. Events have proved this. The central home remains the source of strength and support of the whole, and presents the picture of a great patriarchal household. The centre of the household work must be the House Mother. All the care of the daily needs, the eating and drinking, the clothing, is in her busy hands. She silently provides, helps, softens, rules. In a family organized on this plan, the female element is not wanting. Its existence is desirable. On a large farm, the mother of the family overlooks and directs, assisted by her daughters and servants. So in institutions, the girls may work under the direction of the House Mother, and while the boys are working in field or garden, the girls are employed in the kitchen and laundry. Both elements are necessary for a proper furtherance of the general good. Still the Reform Schools cannot all have the two sexes represented. There are cases where the House Father has no wife, or where his wife is obliged to live away from the institution. But in spite of some difficulties of this kind, the work has progressed regularly, for it is the spirit that moves and rules.

From these considerations, we conclude that the education of neglected children should be given up to Reform Schools in preference to families, if the institutions are organized in the proper way to insure personal care and the social intercourse necessary for the young. What other conditions are needful we now propose to inquire.

V. LOCATION AND EXTERNAL ARRANGEMENTS.

The acquisition of suitable localities for Reform Schools is generally the greatest difficulty at the beginning of the work. When the school is to be established near a great city, the land is costly, and even in the country special aid is necessary to enable the founders of the school to gain possession of the needful space. This assistance may be a gift of the

ground or sale on easy terms of land and large buildings. Volter mentions nine institutions in Wurtemberg which were enabled to purchase domains and public buildings far below their value. The castles of Beuggen and Arnsburg were the gifts of their princely owners. The Abbey of Düsselthal was bought. These have been mentioned already. We know of no similar bequests in the north or centre of Germany. Reform Schools have been usually begun in old houses bought for the purpose. These were afterwards re-arranged, and new buildings added. Only a few of the old institutions are so situated in cities that agriculture is impossible. In Wurtemberg, only two or three houses belong to this class, viz.: Silesia and Goldberg. The three Reform Schools of Berlin—Urban, *das Grüne Haus* and the Gossner Haus—are situated in the suburbs, and possess more or less garden land.

All the German Reform Schools, and those of Switzerland, Russia, Sweden, Denmark, Belgium and France practice agriculture and horticulture to a greater or less extent. The directors of the schools endeavor to extend their area as much as possible. There is always a stock of cattle and poultry. The House Fathers work the lands of the large institutions, aided by gardeners, overseers and the pupils.

The buildings of the Reform School belong to that special branch of architecture which considers first the definite purpose and use of the construction. They can never be properly built unless the educational workings of the schools are perfectly understood. A wall or a door in a certain place, the situation of a kitchen, may render supervision easy, and prevent not vexation only, but temptation, besides promoting the general well-being.

As a model of its kind, we would mention the edifice at Tuttlingen, in Wurtemberg, built in 1827, by the architect Baumgärten. The houses at Stammheim and Ludwigsburg have been built after its plan. It is intended to accommodate sixty pupils. It is 187 feet long, 28 feet deep, with two wings projecting 18 feet. The arrangement of the rooms of the institution of Urban, in Berlin, is generally preferred. Its cost was 140,000 thalers. The best arrangements for single dwellings, after the Rauhe Haus plan, are found in the houses of the St. John's Foundation in Berlin. These were erected by Hoffman, Inspector of Public Buildings, after the so-called Beehives of the Rauhe Haus. The Ellenshof of Berlin affords a good example of building of moderate size.

Reform Schools should never be in or near large cities. If this be unavoidable, a large garden should be attached to the institution, as at Berlin. On the other hand, it is not best to remove them too far from a city; for the parents and friends of the children will find it difficult to keep up the proper degree of intercourse, and the personal interest and aid of individuals will be in a great measure lost. Besides, pupils, after they leave the Reform School, can be apprenticed where they may be under the protection of the school, and their attachment kept up by Sunday visits. The permanent result in regard to many pupils depends on this after care, and this consideration should be decisive.

Those Reform Schools situated in the country should be at a moderate distance from any village, and avoid any intercourse with the inhabitants.

There is very little sympathy felt for these Reform Schools in the country districts, and entire isolation would increase the estrangement. Besides, the teachers should not be so situated that intercourse with men is impossible. The pressure of his work is heavy on the house father, he needs friendly aid and the conversation of outsiders. It is not well for him to be alone.

Plan and Construction of Building and Grounds.

We will now present a plan of arrangement for a building for a family of ten or twelve boys. The necessary modifications for females will readily suggest themselves. The house should be so situated that all four sides can receive the sunlight. If there be no regular cellar, the first floor should be raised high enough to prevent dampness. The main entrance is generally used only by the teachers and visitors. It leads to a reception-room, which is reserved for the meeting of the Board of Managers, and for ordinary business interviews. For the house parents (*haus eltern*), rooms on the first floor should be fitted up, in such a way as to ensure their privacy. The suite should consist at least of a bedroom and sitting-room, with a private study for the house father, where he can work in quiet, keep his papers, and hold private conversation with any of the children. The room of the house mother must lead directly to the kitchen. This room should be of good size, and so arranged that the children can come for their meals and lay the table. A provision-room should join the kitchen, and communication with the laundry and bleaching-ground must be easy. If a maid-servant be kept, her room must be near the kitchen, within reach of the house mother, and removed from the boys' quarter. The room of the house father must be easy of access for the pupils. A large sitting-room should be set apart for the pupils, which may also serve as a school-room. The table may be used for both dining and study. Adjoining this room should be a large work-shop, which must contain tools for carpenters', tailors', and shoemakers' work. The school-room and work-shop should be separated by folding doors, so as to be converted into one large hall on special occasions. Doors lead from the sitting-room and work-shop to a verandah and the garden and playground. A dormitory is set apart for the twelve pupils and their teacher. This should have closets for bathing and wardrobes. Adjoining, is the private room of the assistant. There should be a sick-room situated at some distance from the bedroom, and one or more spare rooms. A visitors' room may be desirable, but is not necessary. In order to avoid all luxury, at the same time to preserve the family character, no separate room for prayers has been designated. The sitting-room is the proper place for family worship. It is more important to provide good school-rooms, which may serve for the worship of the entire family in larger institutions. If the enlargement of the establishment was contemplated in the beginning, the kitchen should be made at first suitable for the use of a large family. The furniture of all the rooms must be simple, neat, and plain, but inviting. The walls of the sitting-room should be hung with a few good pictures, a map of Palestine, and of the country in which the institution is situated. The bedsteads should be of iron, the wash basins and cups of tin, kept perfectly clean.

Especial care should be given to the proper laying out of the garden, which had better be under the direction of a gardener. Everything that looks like a prison should be avoided. There should be no doors heavily barred, no high walls, particularly about the playground, which should be cheerfully situated near the dwelling, and not far from the garden.

The architecture of larger institutions has been greatly improved by the late Belgian architect Dumont, aided by Ducpetiaux of Brussels. They erected the buildings of Ruysselede and Beernham, of which plans are published in the *Exposé de la situation des écoles de réforme de Ruysselede*, par M. Ducpetiaux. Bruxelles, 1861.

The Educational Corps.

To get suitable instructors is the first condition of success in Reform Schools. In the beginning, the founders of these institutions became their directors, the heads of the family. Life devotion to their great cause was personified in them. John Falk, Count von der Recke, Zeller, Reinthaler, all abandoned their positions in life to become more devoted to the work of educating the neglected. Among them we must rank Pestalozzi and Fellenberg; in France, DeMetz, the Lutheran pastor Bost, and others. It would be desirable, in all cases, to have found persons of intellectual force to give themselves up to the Reform School as Fliehn and Löhle did to the deaconess institutions. It is well to secure the good will and good offices of men of high social position, even as amateurs, and the more constant support of theologians and pastors, who are in a position greatly to aid this enterprise. But the highest success can only be permanently obtained when the business of conducting this class of institutions is considered as a chief, and not as a side object, with devoted and competent persons. In this way only can the brotherhood—inseparable from the idea of the Reform School, the test and the training field of assistants and directors—be properly supplied and maintained. Life-devotion will not alone suffice to found and direct institutions. In the history of reformatory movements, mechanics and peasants have been found who had sacrificed house and home, and all other work, for this cause, and they had made all necessary collections with remarkable fidelity. But their want of intellectual power or executive ability, or of good advisers in critical emergencies, have often multiplied difficulties, and, in some instances, not only produced hindrance to sound development, but a lasting injury. These instances are, however, so rare, that they need not be further considered here. The great question remains to be answered—the great problem must be solved—how to obtain true *house-fathers*, not for one or a few institutions, but for ever,—for all the four hundred Reform Schools that have gradually arisen, and which now exist in the German-speaking States.

Not only must directors or *house-fathers* be provided, but how shall the numerous assistants and other functionaries be obtained. Although every institution may not need an assistant, yet in at least one half of them an assistant is desirable, and in all which are arranged on the family principle several are indispensably necessary. An organization like the Rauhe Haus is utterly impracticable without thirty or forty assistants, and

in others from ten to twenty are required. In all existing schools at least 300 assistants must be provided—or at least 700 men, with 400 married women as wives, and 400 other persons of special qualifications in devotion and training, are required to do the work of reform schools;—and the corps must be increased by a number as large as there are special institutions for neglected girls, of which there are now at least forty. This number must be kept constantly full—all vacancies of officials by death, or exhaustion, or sickness, must be provided for. For a time, in the infancy of the enterprise, the training school at Beuggen, and still later, the brotherhood of Rauhe Haus could supply the demand,—but now, with 400 institutions to provide for, other sources must be provided.

The simplest way out of the difficulty was to employ the public school teachers, or turn the normal schools into training schools; but serious objections were raised against this. The older teachers—those who had been years at work—were best fitted for the position of directors. To these—often married men—a doubtful and precarious support could alone be offered. For this he was required to give up a sure salary, the prospect of increase, and at last a pension from the State. Several Brothers of the Rauhe Haus accepted positions without the promise of any salary. The teachers, instead of a stipend, had more constant labor, longer hours of work, no leisure out of school, a continuous routine of duty all day, including Sunday and holiday, from early morning till late at night. Instead of comparative ease, he was to be weighed down by the responsibility; he must give up all hope of increase of wages, all expectation of a provision for his widow.

In Wurtemberg the government has recently placed the House Fathers on the same footing with the public school teachers. But this is only in Wurtemberg. The duties of a House Father are very different from those of a teacher. Of course he must be a teacher; but beyond this he must be a spiritual guide, and, further, must be able to teach a trade and rule a great household. A House Mother is a pressing need; and the question is whether the wife of the teacher is qualified to aid in the work. These wants are being satisfied one by one. The great need is now of those teachers who, with their wives, have the true missionary spirit, which no amount of training can give. Without this spirit the Reform School can never perfectly fulfil its object. But must the body of House Fathers be recruited from the ranks of teachers alone? Where else shall we look for them?

The same difficulties arise in reference to the assistants, whose services are indispensable. The quantity and variety of work in a Reform School makes personal aid an absolute necessity, from an educational point of view. The assistants represent the House Father, who cannot do all things in person. There is often need for prompt, yet prudent, action on their part. Oral instruction, though necessary, cannot take the place of the personal influence of the teacher. This is all-important in these institutions. Where shall such assistants be found? They, too, must share the missionary spirit—must show their manhood not by words, but actions. The proper supervision of a Reform School does not consist in mere inspection, but in living, working and playing with the children. The

assistants must be men of ability, full of a child-like, yet serious, spirit. Young teachers, just past their examination, would make excellent aids. Unfortunately there is a prejudice against all labor—manual labor particularly in training institutions—which prevents their graduates having technical skill or authority.

To meet this want, the societies of Wurtemberg, in 1861, determined to train those pupils of the Reform Schools who seemed suitable. A beginning has been made, but the results are not yet known. The same motive led to establishing preparatory schools in connection with the Reform School. But the most important step was taken by the government of Bavaria, in 1858. On the motion of the Director of the Gymnasium, Von Jan, the friend of reformatory education, it was decreed that the assistants in Reform Schools who would prepare themselves as teachers of the poor should not be required to attend the normal schools, if they could pass the final examinations of the teachers' seminary. Some three or four years ago, the Prussian government allowed the directors of Reform Schools to pass the State examination of teachers. This has been somewhat modified, in consideration of the other duties required of such persons; but the examination, if passed, does not render the House Father fitted for any other teaching but that of Reform Schools.

The only sure way of training House Fathers and assistants is to establish special institutions for the purpose. Soon after Beuggen and Lichtenstein established their training schools, the Rauhe Haus founded the "Brotherhood," with the object of meeting the wants of Reform Schools and kindred institutions.* Similar training schools were connected with Düsselthal, Züllichow, Neinstedt, Puckenhof and the St. John's Foundation at Berlin, in Bächtelen near Berne, in Reval, in Milan near Geneva, all of which pursue the object of training principals and assistants.

In 1867, an institute was established in Wurtemberg for training male nurses, but the instruction in reformatory methods was not excluded. Applicants for admission into the Brotherhood must be over twenty and under thirty. They must bring evidence of a pure moral character, and of their devotion to the missionary life of the institution; they must reach a certain educational standard, be prepared in some trade, and express their willingness to accept any missionary labor. On entering the Brotherhood, they give up their former occupation. Several years of theoretical instruction, together with practice among the pupils of the Reform School, enable the Brothers to undertake the work in other establishments, and finally to become directors of Reform Schools. Though the Brotherhood have supplied the wants of many schools, they have not satisfied all. The Brotherhood of the Rauhe Haus has sent out from the commencement nine clergymen and fifty Brothers, besides a number of Brothers temporarily connected with other organizations. Many of the pupils, after becoming principals of Reform Schools (in Prussia), have passed the State examination for teachers, and thus gained the privilege of that profession.

* The original name was "Assistants' Institute," in the sense that those persons therein trained in work were members of the Rauhe Haus, not educated for other institutions. As many said that young men could not be educated for an independent sphere of action, unsuitable persons were deterred from entering. So the name was changed to Brotherhood, because the assistants of the Rauhe Haus are called Brothers.

The *Rauhe Haus*, to aid young institutions, sometimes lends assistants for a year or two. When the Brotherhood and Reform Schools are united, they are under the direction of a divine, who bears the title of "Inspector."

For the training of female assistants there exists the institution of Mrs. Jolberg in Baden, and of Wilhemine Canz in Wurtemberg. The primary object of these, as well as that of the Frankenstein establishment for deaconesses, is the education of teachers for infant schools.

The same want of assistants for Reform Schools has been felt in other countries as greatly as in Germany. In England (1840) steps were taken to found rural institutions for the 50,000 poor children scattered through Poor Houses. Drs. Kay and Tufnell established the training school at Battersea, for the purpose of preparing the necessary assistants. In 1850 the government gave the beautiful old castle of Kneller Hall for the establishment of a second institution.*

It has already been stated how Duquetiaux, in Belgium, obtains his assistants. The education of lay brothers in Mettray is similar. Demetz, understanding the need of an establishment of the kind, founded the training school before a single child was admitted to Mettray. In his report of 1865, he says: "Ideas are not wanting among us, but men capable of applying them, especially when they relate to serious subjects." Similar training schools have been formed by lay associations in other parts of France, where assistants from the order of the clergy were expressly refused.

The Roman Catholic Church of Germany places its Reform Schools for girls under the direction of a sisterhood. In Wurtemberg the boys' school is under the same supervision. Hirscher says that the "director of a Reform School should have the education of a clergyman, the loving and sacrificing spirit of a saint, the prudence, tact and experience of a man of the world." How the question is solved practically we do not know. But there should be a special call to the work; for religious enthusiasm is the true qualification.

VII. RULES AND REGULATIONS.

When the house has been erected, the garden planted, and the teachers found, the next consideration must be the rules. The Reform School, like the family, has its prescribed order, through which all move in harmony. The main point is not, however, the regulation of a single part, but the united progression of the whole. Life is the essence, law the outward form.

Many expect that the management and order of a Reform School is the most important part of the education. It is like a perfect instrument skillfully welded, which changes the old into the new, and converts the wicked child into a good one. Statesmen, churchmen, schoolmasters, parents, philanthropists, all talk about it. According to their understanding of the subject, *reform* can not only be effected in a certain period of time, but depends on the disposition of the principal and his assistants, who

*The institution at Kneller Hall has been discontinued, and the Training School at Battersea is not restricted to the purposes originally entertained by Dr. Kay, (Sir James Kay Shuttleworth.) H. B.

can hasten the result by a more judicious application of the methods. Ignorant persons, holding this opinion, have sometimes offered money to accelerate the changing process, and the success of the institution is measured by it. Nor are these persons alone in their judgments; many professing Christians agree with them. They believe that morality and religion can be acquired mechanically. They forget the freedom of the man, and that the child in the school must have the same absence of restraint; that it must be allowed to develop its being naturally, or the spirit of the Reform School is obscured or lost.

The source of authority in the School, as in the family, is the House Father, who is aided in his direction by the House Mother. His power must not come from without, — the authority attaching itself to his position, — but should be the spontaneous expression of his character. The parents of the house are the living law, which emanates from them and is recalled by them. Their rule is like that of the Good Shepherd, who will bring back the lost to the fold, and will never cast out those who come to Him.

The spirit of the house should be the first object; the next should be the order of the household, which should not be too rigid, but consider the interests of the individual as well as of the whole. The characteristic of the Reform School is its Christian life. This is not essentially different from the life of any Christian family.

The regulations of the School are in nothing artificial. They are based on the wants of the pupils. This must be particularly considered. To carry out the government of the household understandingly each pupil must be considered. The first rule of entrance has been spoken of. Nothing must remind the inmate of his former life; he must meet kindness and complete forgiveness; he must feel that he is a child of Christ. The intercourse must express confidence; therefore, the Reform School has no walls or fences, no locks and bolts, no espionage. Everything must express love, — nothing awaken doubt of it. This love is best expressed to the child by a watchful care over him. A child entering a House of Correction hears of nothing but punishment, feels nothing but force, sees nothing but bolts and bars. All the regulations are based on the condemnatory law.

There is nothing more required of the child in the Reform School than in the well-regulated family. As in the family, the daily routine centers in certain periods. These are the beginning and close of the day, and the meal-times. All are assembled at table. The meals should be simple, appetizing and nourishing. They are taken after previous periods of work. The intervals are filled by various occupations, school instruction, work and play. Whatever is needed for the household is procured by the pupils when it is possible. So they learn the value of their own exertions, and the need of mutual aid, the pleasure of serving one another. The whole life is a service. The highest is but a servant. To rule is to serve. This the children see exemplified in the directors of the house, and they gain a fondness for serving in their turn. The most important form of the day is that of prayer, when all meet together and quietly prepare for Sunday. Sundays, holidays and festivals gladden the year.

The celebration of the birthdays is not forgotten. The poor of the vicinity are remembered, and each pupil is encouraged to save for charitable purposes. The child should be made to perceive how pleasant intercourse with his father and mother is becoming. Not to interfere the least with this relation, the House Father and Mother are never called father and mother by the pupils. Many parents find again in the Reform School the long-lost love of their children.

It would be easy to extend each division of this subject, but enough has been said to show how various are the enjoyments shared by the members of this family, how improving the duties imposed. Everything in the rule of the household has its time and place; everyone conforms to that time and place. The elements of family order are impressed in this way on the pupils. In the parental household the government is necessarily mobile,—easily broken by the children. But in the Reform School this is not so. There can be no arguing the reasons for obedience, but silent conformity to the rule. The pressure of this moral force is remarkable. Many an obstinate and ungovernable boy, whom a father's severity, a mother's prayers, or a teacher's discipline could not move, seems transformed in the school. He yields to the gentle but powerful current, and is borne unresistingly along. Children whom bolts could never keep within their homes, come into this life of freedom, and never transgress. No special means of discipline are needed. Force would dissolve the bonds of this new life. No wall or roof would be too high for one who was resolved to escape. But they are free,—they can go if they choose. Only a silent, tender, all-pervading spirit keeps them.

Of course this new order of things comes very hard on many children, although they are attached to the household. The difficulty proceeds from physical disorder and want of cleanliness. Among the poorer classes, poverty, neglect, the condition of the dwellings, causes bad habits and blunts the senses of the children. The school must change all this. The order of the house must be insisted on. Punishments are rarely advisable; patience, forbearance and persistent, gentle teaching cure the evil by degrees.

The manners and customs of the different countries must determine in some degree the daily routine. But every house has introduced family-prayer, hours of work and play, and the observances of the Sunday. The practical equalization of study and work presents some difficulties, as yet, which experiments will soon settle.

With regard to meals, while the poverty of the children must be remembered, anything like beggary in the establishment must be avoided. If there are in the school wealthy children who pay their board, this must be taken into account, that parents and children may be satisfied. All should have milk daily, and meat should be furnished two or three times a week at least. It has been observed in small institutions that meat increases the physical health of the children, although their moral improvement is not affected by it. As the schools have gardens and orchards, the children can have plenty of fruit and vegetables.

The *clothing* should be clean and warm. They should not wear a uniform. Good carriage of the body should be demanded. The Reform

School only admits healthy children, yet many are scrofulous, and need great care, a regular and simple diet, clothing warm and clean, personal neatness, well-aired rooms, with a change in occupation. These are the conditions from which health results.

Every reformatory institution should have a special room for the sick. Every indisposition should be cared for at once. The attendance of a physician should be required even in cases of slight ailments.

VIII. WORK AND INSTRUCTION.

In the Reform School, work, study and recreation should be so equalized as to promote and help each other. The problem of popular education is solved in these institutions as no where else; for elsewhere the element of freedom is wanting. The success of the training would not be complete, if the pupils had instruction beyond the walls of the establishment, that is if they attended a public or parish-school, for the necessary order in the division of the day would be lost. And there would be failure too, if the school were merely a school, and the other employments made secondary to instruction.

Again, if the institution requires the pupils to devote themselves to labor, by which money is made, the aim of the Reform School would be lost. The practice of parents to employ their children in factories where wages are earned, is too often the cause of wickedness and neglect. All monotonous and stupefying labor should be abolished from the Reform Schools. Under this head may be classed the occupation of pulling flax, horse-hair, manufacture of pasteboard boxes, etc. Still more ruinous is the practice of sending pupils to work in factories.

It should be made a rule that the family divisions of a Reform School should prepare with their own hands, as far as may be, whatever is needed for use. This may be done quite extensively, if the proper attention be given to the work. Success in this depends mainly on the director, who must be a person of administrative power, and have had special training in the technical parts of various trades. The house-mistress must superintend the household work in every detail, and overlook the sewing. Both should put their hands to work, whenever necessary. A sufficient number of persons should belong to the establishment, in order that the system of labor may be fully carried out. When this is done, the results are most important. The work is classified, performed with earnest diligence, and finished with skill. When the directors understand their calling, this system of labor can be carried out in a small institution of twelve children.

The importance of such a work is two-fold. First, the training of the mind and hand in any technical work. The established rule of any craft will not appear arbitrary to the boy, but necessary and pleasant to submit to. The quick, successful handling of a plane, hatchet, or plough, distinguishes the boy. He feels pride in becoming a good farmer or joiner. Work puts a definite goal before him. By determination he can reach it. He tries and succeeds. It is the same with the girl in her feminine crafts. These results cannot be attained without great diligence and perseverance. Repeated trials are necessary. All find the need of mutual

and, without which no one can succeed. The pupil will suffer at first from the restraints laid upon him by his work, but all grows easy when he finds that endurance, thought and determination have attained the wished-for result. Then the work is done without compulsion; the will is strengthened and purified. Where the pupil is anxious to know the intricacies of the craft, the whole man is called out, and education begins. What else could take the place of healthy labor in this respect?

The second point gained by such labor is that it becomes a preparation for the future calling. There can be no more efficient means of furthering a good education for those who in the future must depend on manual labor for their support. They have learned that labor forms part of human existence, that a higher want is satisfied than the desire of earning money merely, that he who can work possesses a capital which he is in no danger of losing, and which gives him power and reputation. The result of such a system of training is, that most of the scholars leaving the institution are able to earn their living, which could hardly have been expected of any one of them when they entered. The statistical table in the 12th Division will show this sufficiently.

Nothing perhaps has been more instrumental in bringing about these results in the *Rauhe Haus* than its family system, which influences so energetically the various divisions of labor. No family will tolerate a "lazy" member, but urges him on to diligence. The family considers itself morally responsible for the existence of such a member, who would bring disgrace on it. The utmost is tried to bring him into a better way. This fact shows one of the results of this organization.

We must now briefly consider the *work done in the establishment*. The first object must always be the dwelling-house and its belongings. This is required of the family of every small mechanic, and to some extent from others, at least as far as the daughters of the house are concerned. The abode of the children is thereby endeared to them. Here in the sitting-room, bedroom and kitchen their earliest wants are satisfied. Every day begins with a local renovation, restoring the original order and cleanliness to the rooms. The House of Correction cultivates these virtues to some extent, although a high degree of perfection is impossible.

The *Rauhe Haus* goes farther than order and neatness, and cultivates the sense of beauty by embellishing the place of abode. There should be flowers and pictures in every Reform School. Among the lower orders of our population a germ of this love of ornamentation is found, which finds gratification in common pictures. This innate sense of beauty should not be despised, but raised and purified. All those tasteless pictures, which are often the object of misguided piety, should be excluded. Children readily learn the habit of giving each other pleasure. They gain that affection for their dwelling-place, of which the families from which they sprang were ignorant. In a very simple way the ideal side of family life may be cultivated. The world owes this to Christianity. It is a very important point in education, one which we cannot insist too strongly.

The domestic duties may be divided into two classes, viz: daily personal duties, like making beds, etc., and those voluntary, extraordinary

ones, which are suggested by the attachment of the members of the family. Among these are birthday and Christmas preparations, and the decoration of the house on festive occasions. After these domestic labors come the manual labors proper. These consist in the manufacture of various implements needed in the house,—of clothing, shoes, etc., and working in the field or garden. The Reform Schools of Germany and Switzerland are, in different degrees, small agricultural colonies. Where farming, a trade, and domestic labor go hand in hand, and the common life is made pleasant by mutual aid,—not compelled, but given voluntarily,—an element of vast educational and social importance will be developed. The proper value of work is learned, and the knowledge of the meaning of property acquired. These are great benefits.

One of the chief aims of the Reform School is to impress the pupils with regard for the sacredness of property. Many of them have been led astray by transgressing the law of property. This is more easily accomplished with children than with grown-up thieves, to whom the idea of the sacredness of property is unintelligible and ludicrous. The practical lesson enforced by a life of labor is of the greatest importance. The institution may cultivate this feeling still more, by giving the pupil some palpable result for diligent labor, placing him gradually in possession of some amount of property, be it ever so small, which naturally takes the form of a savings-box. Having and saving are ideas essentially belonging to every child. The pupil of the Reform School should be trained to a practical understanding of the two ideas. The system first introduced into the Rauhe Haus has been imitated by the saving-tables of the children of other institutions. As Pastor Wilhelm Baur does not mention it in his report of the Rauhe Haus, a short account may be of interest; for the method has had the best possible effect on the work and social intercourse of the children.

The beginning of a savings-box is made at the time of entering the school, when every child receives eight schillings (Hamburg currency), from the House Father. The parents of course are not prohibited from giving presents of money to their children. This can be done when visits are made. Notice must be given to the authorities, and the money at once put in the place assigned for it. Besides this, a few pennies are added at the end of every week to the account of each diligent child. The little sum increases month by month, and is recommenced at the beginning of the year. In some fortunate cases this sum may annually amount to eighteen shillings. It does not count as a reward of labor, but is a gift merely. The chief point is gained in putting a little property into the hands of the children. It is true that they have not the control of it, but every child has a savings-table, giving an exact account of income and expenditure. The money is at the free disposal of the child, after consulting the proper persons, for buying flowers, birthday gifts, or giving to the poor. The total amount belonging to the children is at present 706 Prussian dollars, 395 of which belong to former pupils of the institution. Out of this money, the repairs for damages are to be paid, and in this way an excellent method of punishment for carelessness is provided. Each child has clothes, a small garden, and tools confided

to his care, for which he is made responsible, and so the idea of property is in various ways impressed on his mind.*

As the family is thus connected with the labor of its various members, and the work distributed through the day maintains the existence of the family, so the school must be a link in the chain of the organization, and not an appendix merely. This would be the case if the school were not composed of the children of the institution, but when they formed a part of some other school. By the temporary dismissal of the pupils from the institution, they would not only be exposed to temptation, but would endanger the well-being of the village school, and give additional trouble to the master, to which he might justly object. In cases where the House Fathers were men of no education, there certainly was no other way of satisfying the demands of the school authorities than to appoint a separate teacher, or call in the assistance of the village school. In many places the utter incompetency of such arrangements has been reorganized, and more competent House Fathers appointed.†

When the House Father can be the teacher also, everything assumes its just proportions. The only danger is that the establishment may assume too much the character of a school. This has sometimes been the case when the House Fathers have been school-masters. The temptation is great to overlook their present duties for their former ones. This danger is increased where men hold the doctrine that the school may take the place of the family, and be essentially the educator. In such instances the danger of the school's absorption of all other means of discipline is imminent. If the establishment should lose its labor system, it would be deprived of all its blessings, and cease to be a spot where, by gentle means, the working powers of the hand are developed, the character formed, the idea of self-help awakened, and the desire for mutual aid promoted. The question is to find the relative value of school instruction, social intercourse, and manual labor, and give to each its proper place.

The value of the school in reformatory establishments is evident,—it is one of the indispensable agents in the improvement of children. The school is likewise a peculiar field of labor. The teacher must work himself, but only in order to induce the children to work with him. He must awaken the interest of the pupils in the exercises which the school demands, and guide them on. The school tasks required of the pupils develop the will as much as any other labor; the aim only is a different one. In school the work is constantly growing, and new ground is being conquered. The elementary instruction only provides the wherewithal to do this; but as instruction advances, new acquisitions are being con-

* Even in those Reform Schools which receive children from the better classes, manual labor is by no means to be neglected, though it may be limited by various circumstances. Interesting facts might be given to show the willingness with which boys of this class undergo great hardships, but this would lead too far. But this we must say, that the experiments made at the Rauhe Haus confirm our conviction that much good might be done if other institutions for the children of the wealthy would give their attention to the subject. In this way the foolish idea of the disgrace attaching to labor could be eradicated, and the value of work properly recognized.

† In some institutions good educational results are obtained, because the House Father is a man of excellent character. This is another proof how much in education depends upon the person of the educator. Still these instances are rare, and are mostly of those men who without learning have had practical experience in the working of a school.

stantly made from the treasures of nature and history. The teacher is among the children as the wealthy owner of all these mental riches, which they desire to possess. At the same time he is their friend, who shows his love by teaching them how to make the coveted treasure their own. But, in the Reform School, the teacher is at the same time the father of the family and the pupils are his children, whom he inspires with the desire of acquiring knowledge.

If we consider the difficulties which are thrown in the way of every teacher in every school, and think of the struggle which he must go through with many of his scholars to make them understand his intentions, and reward his love by learning diligently, then we must look to find greater difficulties still in a Reform School. We must see this clearly, in order to understand thoroughly what the duties are of a House Father and teacher combined. For this purpose we must recall the character of the members of such a school. It is composed of those who, before their entrance into the institution, were notorious creators of disturbance, those who have been expelled from school, and those who could not be tamed by any discipline whatever. The classes are composed of elements which, taken singly, any teacher would wish to banish from his school, and which combined present the greatest difficulties. If there are amongst the pupils such as have become good scholars, through the discipline of the House of Refuge, they will soon leave, and their places be taken by the intractable. As there is no fixed period for the admission of the pupils, there will be a continual change all the year round. It is one of the characteristics of the school that the members hate it in varying degrees. The House Father has the most difficult task before him; but to answer the end for which the reform school was founded, it must be fulfilled, and there only can it be done. But for this a House Father, in the fullest sense of the word, is required. A parental relation must exist between him and his pupils. The family must form the basis of the school, and the family spirit must pervade it, to enable the teacher to overcome successfully all the difficulties before him. If the reform school does its duty, a great benefit must accrue from this family relation. The children belong to both; the same influences are brought to bear on them in the one as in the other. The system of manual labor is also inseparably connected with and affected by family and school.

The aim of the reform school is much the same as that of the well-organized public schools of Germany. Various grades of instruction will, however, be distinguished, according as the pupils are from city or country. As regards elementary knowledge, the aim is distinct: well-accentuated reading, clear hand-writing, and a practical knowledge of arithmetic. The results are truly astonishing. The girls usually write better than the boys, for the hands of the latter have become clumsy by constant hard work. The selections in the Readers, afford an opportunity of gaining a knowledge of history, geography &c.

The children should likewise be impressed with the importance of their future position as citizens, when some practical proof of their patriotism will be demanded. For this purpose a knowledge of the history of their common country is required, as well as of the country in which they were

born. The future soldier must know for whom and for what cause he is to bear arms, and what his nation has already accomplished on the field of battle. It is the object of the school to awaken the most ardent patriotism, and train the young people to true liberty.

The tendency of the age is so materialistic, and all the education given to the working classes is so thoroughly pervaded by this spirit, that an opposition to it is urgently demanded. Our education must become more ideal. One important element in the training of the imagination and feelings, is music, particularly vocal music. We do not mean to exclude the singing of good church tunes, but refer chiefly to the popular songs (*Volkslieder*.) The greatest care should be bestowed on this branch of instruction. There is nothing which can take its place, and through it the noblest emotions of heart and soul are awakened. The most tender, nay, religious, feeling is expressed in the national songs. The enthusiasm of the ancient and modern German poets is borne aloft on the wings of music. The love for the Fatherland, its heroes; for summer with sunshine and flowers, bright mornings and balmy evenings, for the green forest and its dreamy loveliness, finds its echo in melody. The gently-swelling and powerful chorus opens a new world to the children. The singing-master, to be the interpreter of the new ideas, must himself be a singer, with the feelings of a poet and hero. He must carry the young mind with him, not by explanations, but by the subtle magnetism of feeling. We know how far below this ideal most House Fathers come; but we know that the standard has and can be reached.

It is important that the songs taught should be pervaded by true patriotism. In some schools religious songs are sung exclusively. According to the opinions of a few narrow-minded people, these are the only kind to be tolerated among Christians. These opinions rest on a mistaken view of human nature. The just demands of the human mind are left unsatisfied by strictly religious food. A young man is tempted, as soon as he leaves the discipline of the school, to throw off all restraint, and go too far in the other direction.

The greatest difficulty is presented in the religious instruction which is divided into catechism and Bible history. Remarks on this subject are given in another place (Chapter XI.)

In briefly reviewing the course of instruction given, we find that it is confined to religion, reading, writing, arithmetic, singing and free-hand drawing. All can be readily mastered by the application of four hours a day. Whatever is left undone in the summer, can be finished during the winter months, when there is less out-of-door work.

As regards the instruction given to the children of the higher classes, who form a separate community in most Reform Schools, little need be said here, as it does not differ materially from the instruction of the gymnasia and real schools. We would only say that such instruction is absolutely necessary. Pupils coming from such schools and not unfrequently returning to them, must not have their education interrupted.

IX. TIMES OF REST, FESTIVAL DAYS, GAMES, ETC.

At the close of every stated period of work or study, the influence of the family, as such, again presents itself. The strict adherence to rules of

discipline, so absolutely indispensable during the school or working hours, is now dropped. Now the children may indulge their own fancies, kept in bounds by the good old German family customs. Each day begins and closes with morning and evening worship, and the family, after every period of bodily and mental exertion, becomes a place of recreation and renewal of strength.

The task of those who have the charge of the children during these intervals, is by no means an easy one. It consists in making the association of the children, at meal-times, for instance, of such a character that in a free and natural way both bodily and mental food are given. A cheerful, yet instructive, conversation becomes the best seasoning of the meal. At these times the hitherto hidden influence of the House Mother and her female assistants makes itself felt. By their care the table is spread with simple, yet palatable, food. There is usually a little interval between the labor or study after each meal, especially in the evening, on Saturday evening particularly. There are the general and special festivals.

The regular succession of work and recreation is an essential condition for a healthy Christian life, for nations and families, as well as for individuals. Wherever these periods of rest and refreshment do not exist, or are granted only as nature imperatively demands, there life in state, church or family, goes wrong. It is one of the worst symptoms of our present national state, that by the rapid social and industrial development, the times of rest and recreation for the greater number of persons is reduced to the smallest possible period. On the other hand, those classes of society, who may have the enjoyment of sufficient intervals of rest, plunge into dissipation.

The children of the Reform School are entirely ignorant of the rational way to fill the intervals between work. The way in which this is done characterizes every family, and the Reform School as well. The imaginative side of life may now show itself in the special festivals of the individual, and the general family celebrations. The evening, after the day's work is done, should be the pleasantest time. Saturday evening and Sunday ought to be the festivals of each week. In the great patriotic festivals the life of a nation finds expression, and in the great Christian festivals the joy of Christians is poured out. The Reform School must as a family, and part of a nation, satisfy all proper demands in this direction.

Many duties devolve on the House Father, trifling in appearance, but important in reality. We cannot enter into all the details, but will mention that among them must be classed the maintenance of a polite deportment among the members of the household throughout their whole intercourse, and personal cleanliness and propriety in dress, etc.

We must briefly dwell on the plays and games of the children. As a general rule, a child shows its true nature in play. It is the expression of its joy expressed in perfect freedom. Here lies the magic power of play. A child, especially a girl, lives through a whole mother's life with her doll. She enters into the joys and cares with touching earnestness. Every girl in the Reform School should have her doll as long as she

desires. There are, of course, here, as everywhere, cases of children who do not care for play—more among the boys than among the girls. Great skill is required to create the wish to play in such a child; for commands are of no avail here. Love and gayety, the spirit of play, are beyond a rule; they are born of liberty. He will be an incompetent father or useless assistant who cannot play himself, and enter heart and soul into it, becoming a child with the children. To play with the children is just as important as to work with them. Free as the sports must be, they must not degenerate into aimless romping. All the mischief and malice dwelling in the little ones breaks out during these free hours, and the House Father must check all outbreaks of passion. Certain games recur at regular intervals.

The national or provincial peculiarities expressed in various games have a great charm for children. They should be encouraged as much as possible. It would be a sad sign if such amusements were not allowed in a Christian Reform School. In a penitentiary, games, of course, cannot be tolerated; but in the school, where the past is forgiven, the cheerful influence of games must find a place.

There ought, also, to be bodily exercises of a stricter kind, such as gymnastic exercises and military drill. The latter should be accompanied by the drum, or by the singing of a martial air. Swimming ought to be practised whenever an opportunity offers.

Another important source of amusement is the little garden, which every child ought to own. These gardens may either encircle the playground or form a place by themselves, but must not be too far from the dwelling-house. Some Reform Schools have made a great mistake in banishing these gardens to old shady places, or to a soil where nothing would grow. He who knows to what great results little things often lead, will not consider this subject unworthy of consideration. How does the child stand like a little prince before his flower-bed, watching day by day the development of the plant; its growth from tender shoot to bright green leaves, and at last the opening of the long-expected flower! All the hopes of a child often center in the thought how it will gladden the heart of a parent, on the next visit, with the flower now sleeping in the bud.

Other occupations fill the long winter evenings, and the treasure of song gathered in school-hours is now voluntarily drawn upon to while away the time. Many of the evenings preceding Christmas are occupied in preparing gifts for that happy time. These pleasant employments are varied by reading. Every reform school, therefore, should possess a good library for general use, containing instructive and entertaining works in history, biography and travel.

No opportunity should be allowed to pass of combining instruction with amusement. We know from experience what a source of enjoyment the annual visit to the Zoölogical Garden of Hamburg is to the children of the Rauhe Haus. Occasional lectures on physics, chemistry, and the wonders of the microscope, accompanied by experiments, will also prove useful and amusing. Besides, there is Sunday, supremely a day of rest, rich in spiritual blessings.

X.—PUNISHMENT AND DISCIPLINE.

No one will form the opinion from what has been said that there is never any disturbance in the family life, in the hours of labor or in the school. It is, of course, the first duty of the teachers to prevent such disturbances. But when the vicious tendencies that have been sleeping for a time break out anew, assuredly the delinquent must be made to feel that if his former transgressions are forgiven, these new sins must be punished. Whose duty is it to inflict chastisement in such cases? There are schools where the discipline of the school is managed by a committee. In some instances, quarrels between the adult members of the institution have been brought before this committee; and we know of cases where the House Father has actually been reprimanded in the presence of his assistants. In other establishments the corporal punishments have been entrusted to the principal of the institution, who has to hand in a report as to his manner of dealing with the pupils. It is carrying power too far to expose a House Father before his inferiors, and the very foundations of his authority are shaken.

The power of punishing ought to be in the hands of the House Father. It is the inalienable right of the father of the family, and it ought to remain exclusively with the head, and not be given to the assistants, except in special cases. The infliction of corporal punishment should be allowed to the assistants in a very limited degree. Their duty is to report all flagrant cases of insubordination to the House Father. The children ought, on the other hand, to feel that they may always appeal to the House Father, in whom they place the fullest confidence.

No punishments should be inflicted but such as a father would give his own children, and chains and handcuffs must never be employed; for the school would at once lose its character, and become a mere House of Correction. Consequently, there can be no code of punishment laws, but only the general rules existing in every family. Of course there must be corporal punishment in the school; no torturing, but the good, old-fashioned caning, always inflicted by the House Father himself. Used in moderation, and only in extreme cases, it is indispensable in the Reform School.

Another efficient punishment, which must be employed still more rarely, is solitary confinement—an actual incarceration. This mode of correction has often been the only one found capable of bringing some obstinate offender to his senses.

There are some cases in which all discipline is in vain. We do not mean the once running away of the pupils. In all cases they must be sought for and brought back; and the conduct of those committees was unjustifiable, who not only did not look for the truants, but refused to admit them when they were brought back. But what is to be done with a child who escapes not once, but twenty times, and without any apparent cause? Repeatedly rescued from want and misery, he again and again returns to it, and willingly exposes himself to cold and hunger. No rules can be given; but the Reform School must always receive the child when he is brought back. His conduct shows how much he needs the help of

the school. There is nothing to do but to rejoice at his return. His comrades will, in most cases, form a living wall around him, receive him affectionately, and show more tenderness than grown up persons would be able to do.

What is to be done when the children conspire together and form some secret organization, where vices of every kind are practised? These are difficulties of a serious nature, which must nevertheless be solved in some way. It is easy to say that the offenders should be given up to the police; but it is not the intention of the Reform School to dismiss such children, but to remove the causes of their wickedness. Great earnestness and courage are required for such emergencies. The guilty children must be deeply impressed with the truth that, though they deserve the Divine wrath, they yet, by the love of Christ, may be pardoned. This very love empowers the House Father to receive them repeatedly, in spite of all their sins. It may sometimes happen that the whole family are asked to co-operate in the restoration of the lost ones, and that such an event ultimately proves a great and lasting blessing to the whole school.

There remain two disciplinary measures for very extreme cases. Instances when public crimes are committed have happened, and may happen again. We know of several cases of attempted arson and murder. The House Father, as head of the family, is not obliged by law to inform the authorities of such crimes. Although he may keep the knowledge to himself, he will owe it to the criminal, in most cases, to give him up to the punishment by the government. Regard for the other pupils imperatively demands this course, and it will be for the ultimate benefit of the criminal. Again, when all attempts to reform a child have proved failures, and the well-being of the other children is endangered, he should be dismissed. In the Rauhe Haus there have been ten such cases during a period of thirty-four years.

XI. RELIGIOUS EDUCATION OF THE PUPILS.

The importance of religious instruction in the Reform School has already become evident. The Gospel—God's pardoning grace through the blood of His divine Son, Jesus Christ, and the grateful love that binds the ransomed soul to the Redeemer—is the foundation of all such institutions. They aim to create a new life in the hearts of the pupils by the power of the Gospel. Mere human effort cannot do this; but it can do something towards it. We will divide this chapter, and describe—*A.* Instructions intended to embrace the whole establishment; *B.* Instructions intended to develop the religious life of the individual.

A. According to the general rules of Christian life, each day must be begun and closed by the reading of the Bible and prayer. At such times the family becomes a congregation, gathered before their Heavenly Father. The House Father is the priest and servant of God, through whom He speaks to each, and offers His gracious invitation to become one of the family of God. These exercises should be short, so as not to weary the youthful mind. In the morning they should consist in reading and explanation of short passages of Scripture. Some of the younger members may

not understand all that is said; it is not to be expected. God Himself often said more than His disciples understood at the time. It is the nature of the Word that it falls into the heart like seed in the ground, to lie hidden for a time, and then bring forth the blossom.

A judicious and intelligent House Father has an excellent opportunity to refer to occurrences in the family life, — to build up what others have torn down. At this time, also, new members of the household are introduced, the birthdays are spoken of, and a word of caution or encouragement given. The birthdays of those who have left the school may be mentioned. The memory of the old companion is revived, and words of joy or sorrow spoken, according as he has fulfilled or disappointed the hopes entertained for him. The memory of the friends and benefactors of the institution should be renewed on their birthdays. In a simple and natural way, the life of the household is led back to the source of all life. All this combined forms a spiritual power. Every child knows he will never be forgotten by the school. Many a pupil has written how, on his birthday morning, he knew they would be praying for him at the Reform School, and the thought has a power for good.

The evening hour is to be occupied by reading, a prayer and a hymn. These times of worship should be kept entirely distinct in their character from the school and working hours. No school discipline should be exercised. The children must learn that, when assembled as a worshipping congregation, they must maintain order amongst themselves. If reprimands become necessary, they should be given privately, after the close of the service. The children will in this manner learn to distinguish prayer from working time. These hours sanctify the whole, and give glimpses of the coming Sabbath.

Besides the daily prayers, must be mentioned the blessing at meals. The middle of the day is the time for the chief meal, and is the symbol of "the daily bread." The other meals are but preliminary, either preparing for it or supplementary. So dinner is the time for the blessing. The Lord Himself invoked a blessing at the beginning of the meal only, and those who do this follow His example. The custom of the Reform School must in this particular conform itself to the custom of the country.

The most important day, as regards the religious education of the pupils, is, of course, Sunday. When a nation has become estranged from the true way of keeping Sunday, and the pupils on their entrance only know Sunday as a mere day of amusement, all the more is it the duty of the Reform School to accustom them again to its proper observance. Sunday is the day of the Resurrection; its celebration testifies of the victory of life over death. From the time that spring sets in, and all the summer through, the families take turns in going, early in the morning, "when the sun rises," to the beautiful "God's Acre," the last resting-place of many a former pupil of the Reform School, where each grave is only adorned with a simple stone cross and the heavenly words of comfort, *Christ is my life*. They clear and adorn, during the early Sabbath hours, the graves of the departed ones in silence, as the sacred ground demands, and with that love in their hearts which, at such a place and during such an occupation, is but natural. When, later in the day, the other families

go to church, their way leads them past these decorated graves, and the risen Saviour is preached to them each without words.

On Sundays, everyday labor is to cease entirely. The whole house has already, during Saturday, undergone a thorough cleansing; the children likewise, who are dressed in their Sunday's best. Everything in house and garden looks fresh and shining, and every one feels that it is Sunday. Then comes the public worship. In long and orderly procession all the inhabitants of the Reform School go to church. What the pupils have heard already at the family worship they now hear again, in common with God's congregation, as a testimony to them that church and family rest on the same foundation, and should always be inseparably connected. The Gospel of the forgiveness of sins, and the privilege of being called children of God, is not preached to them alone; all are sinners, and all live by the same grace.

From church, the children go directly to dinner, which is always better on Sunday. Then comes Sunday afternoon, the time to which the children have been looking forward all the week through. In many places, one Sunday afternoon during the month is set apart for the visits of parents and friends, and one may then often see parents, arm in arm and in familiar conversation with their children, walk through the shady avenues and between the flower beds of the garden.

But how are the many other Sunday afternoons to be spent? This is a much-vexed question, and there is in this respect a vast difference between Germany on the one side and England and America on the other. For our part, we do not doubt for a moment that the manner in which the Sunday afternoon is spent at the German Reform Schools is more in accordance with the spirit of Christ's Gospel than the Anglo-American one. First among the Sunday recreations ranks the walk into God's free Nature. On Sunday He allows His sun to shine, His flowers to bloom, the brooks to ripple through the forest's shade, and the birds to warble their joyful songs; and should man not enjoy all this on that day? For the rest, the children may in most cases safely be left to follow the bent of their own inclination, and they will find the right way; they will, without being told to do so, quietly read or draw, or do some carving, or something of the kind. Sometimes they will play a quiet game, or some good book is read to them, or they engage in conversation.

Numbers of anonymous letters have been received at the Rauhe Haus from England, in which all this was severely censured. As a special sin, it was mentioned that some of the children had, on Sunday, worked in their little gardens; and why, we ask, should the innocent pleasure be denied them of tending their few flowers on Sundays? We likewise strongly recommend for the girls sewing or mending; they herewith follow a custom which in most parts of Germany distinguishes the good and diligent servants from the idle ones. Especially in winter, the necessity for some such occupation becomes quite urgent. During the weeks preceding Christmas, the children are busily occupied with getting ready presents, by which they intend to gladden the heart of some friend or relative; frequently, also, for poor and sick children. And, truly, what more worthy occupation could be found for Sunday?

The great church festivals, — *Christmas, Easter and Whitsuntide*, — and their celebration, are merely a further development of Sunday. In connection with these festivals is the preparation for each of them. The time of Advent, before Christmas, the season of Lent, before Easter, and the time from Ascension-day till Pentecost, form the great Sabbath times of the new covenant. In this light the church and the family are to look at these seasons. No child, we venture to say, who has once celebrated Christmas at the Rauhe Haus will ever forget it again. We know of several who have celebrated Christmas again in this manner on the prairies of the far West and on the stormy ocean, and as long as they live will the simple songs sung on these occasions resound in their hearts. The season of Lent is the time of preparation for the confirmation; then comes the confirmation itself, and the grand celebration of the Lord's Supper before Good Friday, and the solemn Easter morning service at the graveyard.

There cannot be too much care bestowed on the instruction in biblical history and the catechism, for one is as important as the other. The aim of instruction in biblical history must be to make the pupils as much as possible acquainted with the various periods of this history, and to represent before the youthful mind, in their true dimensions, the grand personages of the Old and New Testament, — above everything else, the unique person of the Redeemer, as the Alpha and Omega of all that has happened. — the further development of God's kingdom, and the fact that, both here and in history, it is the same almighty will that rules the destinies of nations and those of each single individual. Many a one can date the turning-point in his life from this religious instruction received at the Reform School. "That's me!" said, once, a lively little boy, when a person from sacred history was depicted to him by his teacher. This "that's me!" may often be the beginning of a new period in the history of a child's life. In the catechism instruction, an opportunity is afforded to give the children a deeper insight into the divine truths, and to build their faith on firmer foundations, so that all the vicissitudes of life may not be able to shake it.

If we start from the principle that the most essential point in the family of the Reform School consists in that love which springs from Christ and leads to Christ, each child must as much as possible be made to feel of what great importance it is to the leaders of an institution, which is pervaded by the spirit of Christ's love, to save his individual soul for life eternal. The first and chief question is, who is to exercise this pastoral care. As in every truly Christian family this care will devolve on the father of the family, so in the family of the Reform School it will be the province of the House Father to attend to this. He is to be the spiritual adviser, exhorter and comforter of every child belonging to his family.

The starting-point for this relation between the child and the House Father, is the hour when the former is received into the institution. At that time the child is told, with the first welcome, that all his former sins shall be forgotten, and never again be mentioned; but, at the same time, with this significant beginning, the House Father speaks to the child of the only Saviour of men as He who has come to seek and save the lost

ones. The work begun in that hour is to be continued by the House Father, and the whole life of the child at the Reform School is to be a further interpretation of those first words. If the House Father understands how to explain the word of God to the child; if he knows how to make use of the birthday celebrations, and other joyful and sad events in a child's life,—to introduce some word of exhortation and comfort,—the relation between the child and the House Father will naturally become a more tender and intimate one. The conversation need by no means always be of a religious nature; but the child must be able to feel at every word which is said the fatherly love which the House Father cherishes for his children.

Often it may become necessary to take a child apart and engage in prayer with him. Many a one has, just through such a short and heartfelt prayer, by the blessing of God, been saved for life. Never should children, however, be forced to pray. As there is no prescribed method of instruction at the Reform School, there is not to be any prescribed method for the religious education of the pupils. Love which is not voluntary, but forced, carries the germ of death within it. Many people demand such a religious pressure as a sign of true Christianity. All such methodical Christianity is untrue, and should not be tolerated. It is especially wrong to try to bring about conversion by these forced means. Conversion is a thorough change of the innermost tendencies of the human heart, a change of all the thoughts, words and actions, and is brought about not by force, but by the silent working of God's holy spirit. To assist, so far as human power reaches, this labor of God's spirit, is the duty of the conscientious Christian House Father. It is an art of love and prayer, which only prospers by God's own blessing, but which is productive of a divine life, from which, as from a hidden root, those fruits of the spirit spring forth in rich abundance—which Paul describes in the fourth chapter of his Epistle to the Galatians; and these spiritual riches may become the greatest crown and ornament of every Reform School.

XII.—DISCHARGE AND AFTER-CARE OF PUPILS.*

Pupils can be dismissed only when their education has been brought to a satisfactory close. As a general rule, a three-years' sojourn is required to obtain this result, and no child should leave before confirmation. Pupils that wish to stay only a year or two, should not be admitted. Difficulties may frequently arise, occasioned by the foolishness of parents, who, because their children have, perhaps, been punished, as they think, too severely, wish to remove them from the Reform School, or threaten, as has, indeed, already been done, to invoke the law.

In order to meet such difficulties, the Rauhe Haus has adopted the following course. In the contract of admission a passage is inserted in which the parents solemnly declare that they have voluntarily committed their child to the care of the Reform School, and that if they remove their child from the school before the stipulated time, they engage to pay all

* This chapter includes the following subjects: Time and conditions of leaving the institution; further care bestowed on pupils that have left and the difficulty and partial impossibility of doing this; results of the Reform School education.

the expenses incurred during the child's stay. Of course, if the parents are utterly unable to pay, nothing remains but to dismiss the children without insisting on the payment of the expenses. The departure of pupils who have gone through the regular course, that is to say, have stayed till after their confirmation, ought to take place in a solemn and impressive manner; the best time will be the hour of daily worship. The House Father will then hand to those that are about to leave, a Bible, with some suitable words of scripture written on the fly-leaf. At the end of the service, a few words of love and exhortation ought to be addressed to them in public.

As regards the finding of places for pupils that have left, those who have paid for their full board and instruction will have to find places themselves; but the institution will gladly give advice and useful hints. For the pupils of the poorer classes, however, places will have to be found by the institution, as a completion of the education which they have received. The choice of a trade is always to be left to the child, and should have the sanction of the parents. The House Father should, long before the time of leaving, in confidential conversation, ascertain the wishes and ideas of the child on this subject, and, if possible, try to check foolish desires and aspirations.

A difficult problem is the superintendence of pupils after they have left, which should be continued up to a certain stipulated period. After leaving the Reform School, the pupils will in most cases see and hear just the contrary of what they have been wont to at the school; they will be surrounded by immorality and infidelity, which will do their best to draw them into the whirlpool of sin; the public press, with its but too frequent mocking of God and heavenly things, will exercise its baneful influence. On the other hand, there is the excessive demands which in some Christian houses will be made on children that have come from a Reform School, which, according to the ideas of some people, should only turn out perfect angels. It even happens, not unfrequently, that the parents themselves destroy the tender plants of morality and religion which with so much care have been raised at the Reform School, by entreating and encouraging their children to forget all that gloomy religion which they have learned there, and again to place themselves on a level with the cheerful world.

All these circumstances combine to make the continued superintendence a very difficult and delicate task. At any rate a regular contract ought to be signed by the principal of the Reform School and the tradesmaster with whom the pupil is to be placed. Among the conditions there ought to be: permission for the pupil to pay a visit to the Reform School on certain Sundays in the year; a regular weekly visit of one of the assistants from the Reform School to the house where the pupil lives, etc. If possible, the Reform School should, during the time the contract lasts, supply the pupil with clothes, in order to hold out some inducement to his master.

Very difficult, in fact almost impossible, will this superintendence become when the pupils are placed far away from the Reform School, or go to sea, or emigrate to foreign countries. In some such cases the pastor

of the village or town where they were placed has been asked to have an eye to such, and if they should go astray to try and lead them to the right path again. Often, however, this will be entirely impracticable, and all that can be done is to exercise the greatest care in the selection of the persons with whom such pupils are placed.

RESULTS.

As regards the results of the Reform School education, mere numbers will never convey an adequate idea of the good that has been done by them; their silent influence will, nevertheless, make itself felt far and near. As there were no statistics extant concerning these Reform Schools, communications had to be opened with every one of them, and the result has been the following:

There are at present in Germany and the six German-speaking provinces of other countries, 80 Roman Catholic and 820 Protestant Reform Schools. Concerning the former, no information could be obtained, and of the latter, information was received from 79. Many of the other Reform Schools have either not responded at all to our inquiries, or have done so in an entirely unsatisfactory manner, or declared themselves unable to give any information.

Of the 79 institutions mentioned below, 28 are for boys and girls, 44 only for boys, and 7 only for girls.

GRAND DUCHY OF BADEN.—Hardt, near Karlsruhe (16 years).*

KINGDOM OF BAVARIA.—Marienthal, near Schweinfurt (15½); Inken-thalerhof, near Rockenhausen (13); Hassloch (17); Trautbergerhaus, near Castel (17); Puckenhof, near Erlangen (17); Jean Paul Reform School, at Baireuth (26).

DUCHY OF BRUNSWICK.—St. Leonhard, near Brunswick (15).

FREE CITIES.—Rauhes Haus, at Horn, near Hamburg (34); Ellenerhof, near Bremen (20½); Fischer-büden, near Lubeck (22½).

MECKLENBURG.—Bethanien, near Ratzeburg (16).

PRUSSIA.—1. *Province of Brandenburg*.—Neander Haus, at Gross-Camin (16); Marwitz, near Henningsdorf (10); Heilbrunn, near Wusterhausen (15); Goessner House, in Berlin (6½); Pfingsthaus, in Potsdam (16); Wilmersdorf (11½); Cöthen, near Falkenberg (11); Angermünde, (15½); Reitwein, near Podelzig (18); Rother House, in Brüssow (20); Linde (14); Hermsdorf (15); Reppen (15½); Wulkow, near Alt-Ruppin (15).

2. *Province of Pomerania*.—Siralsund (20); Stolp (16½); Garz (23); Triebsees (14); Elisabeth Stift, at Kieckow (17); Elisabeth Stift, at Görcke (17); Züllichow, near Stettin (36).

3. *Province of Prussia*.—Schönbruch (25); Tilsit (20).

4. *Province of Saxony*.—Lindenhof, near Neinstedt (17); Eckartshaus, near Eckartsberge (19); Genthin (12).

5. *Province of Silesia*.—Steinkunzendorf, near Peterswaldau (14); Breitenhain, near Schweidnitz (13½); Neiskv (7½); Görlitz (17½); Rankau, near Mörschelwitz (16); Wilschau, near Kollertwitz (16); Schreiberbau (34); Marija, near Gnadenfrei (10½); Neusalz (17); Michelsdorf, near Landsbut (11); Bethesda, in Friedland (11).

6. *Province of Westphalia*.—Hellweg Institute, at Holzwickede (4½); Gotteshütte, at Klein Bremen (8½); Pollertshof, near Pr. Oldendorf (16); Vörde, near Hagen (6½); Schildesche, near Bielefeld (15).

7. *Province of the Rhine*.—Duisburg (23); Schmiedel (17).

*The figures in parentheses denote the number of years the institution had been in operation in 1868.

8. *Province of Hanover*.—Hameln (14); Linerhaus, near Altenzelle (22); Schladen (16); Ricklingen, near Hannover (17); Grossefehn (24); Httinenberg, near Melle (14).

9. *Province of Hesse and Franconia*.—Beiserhaus, at Rengshausen (23); Scheuern (16); Wiesbaden (10).

10. *Province of Schleswig-Holstein*.—Martin-stift, near Flensburg.

RUSSIA.—Narwa (29); Reval (24); Altona, near Mitau (8).

SAXONY (*Kingdom*).—Weinberg, near Riesa (15); Prince Albert-stift, in Schwarzenberg (15).

SAXON DUCHIES.—Heinrich-stift, in Great Paschleben, near Cöthen (14); Friederiken-stift, in Ballenstedt (10); Georg and Marien Haus, at Meuselwitz, near Altenburg (13); Fischhaus, near Meiningen (7).

SWITZERLAND.—Bächtelen, near Berne (28); Friedheim, near Bubi-kon (20).

WURTEMBERG.—Herbrechtengen (26); Tuttlingen (42).

In these 79 institutions there have, up to November 1867, been received 10,527 pupils.

Of this number—

1. There died at the Reform School,	247, or 3 per cent.
2. Returned to the parents from various reasons, or run away,	630, " 7.7 "
3. Left the institution in the regular course, after having been confirmed,	7,223, " 89.3 "
	<hr/> 8,100

Those who have turned out badly,	644
Of these, punished by law,	339
Unpunished,	305
	<hr/> 644
	<hr/> 644

Those of whom indifferent accounts are given,	1,251
Those of whom perfectly satisfactory accounts are given,	4,529
Those never heard from,	799
	<hr/> 7,223

Therefore, left in the regular course,	7,223
Counting all that have left,	8,100 pupils.

Present in the seventy-nine institutions in 1868, 2,427 pupils.

Of these seventy-nine institutions, there rise above the percentage—

With good (62.6 per cent.),	36 institutions
With indifferent (17.3 per cent.)	37 institutions.

And there are below the percentage—

With bad, not punished (4.3 per cent.),	48 institutions.
With bad, punished (4.7 per cent.),	46 institutions.
With bad generally (8.9 per cent.),	40 institutions.

Fuller details can, of course, be given only when returns shall have been received from all the Reform Schools of Germany.

XIII.—RELATION OF THE REFORM SCHOOLS TO THE STATE.

It is self-evident that the state and communal authorities will take a lively interest in the Reform Schools, because the number of vagrants and candidates for the houses of correction is thereby greatly diminished. That this is really done, is conclusively shown by the numbers given in the preceding chapters. The governments of most Christian countries have, therefore, shown a desire to assist the Reform Schools. The greatest possible caution should, however, be exercised, and the *timeo Danaos* always be remembered, because not unfrequently the union of the

state authorities and those of the Reform School endangers the character of the latter and tends to make them mere houses of correction. This induces the parents, either by stratagem or by force, to entice their children away from the Reform School, and encourages the children to run away from the so-called prison. The spirit of Christian charity which should always pervade the Reform School is thereby greatly diminished, and the confidence of the better class of parents entirely shaken. It is, therefore, necessary to keep the two carefully separated, not as if they were enemies, but because it will be to their mutual advantage. The question is chiefly whether pupils are to be received, who, from some reason, have been placed in the Reform School by the communal or state authorities. The temptation lies in the fact that by receiving such pupils the Reform School gets a certain fixed subsidy, which is paid regularly by the authorities. Agreements of this kind exist in several countries. Thus the Prussian penal law code (§ 42) of 1851 decrees, "that criminals who have not yet completed their 16th year are to be set free, if it has been ascertained that they do not yet possess the faculty of discriminating, and that the court has to decide whether they are to be sent back to their family or placed in a House of Correction."

As there were then only very few such institutions, some substitute for them had to be found, and the Reform Schools were at once thought of. Many people highly lauded the new movement, extolling the "Christian spirit" of the State; while, in reality, the State only wished to get rid of these young criminals. Thus we find, in 1857, 813, and, in 1859, 276 children, who properly ought to be in a House of Correction, distributed over sixty-nine Protestant and seven Catholic Reform Schools. Similar agreements between the State and the Reform Schools exist, to some extent, in Wurtemberg and in Bavaria. In the last-mentioned country it has gone so far that some of the Reform Schools have entirely lost their original character, and are at present nothing but Houses of Correction, maintained by government subsidies, but originally founded by private individuals, legacies, etc.

XIV. RELATION OF THE REFORM SCHOOLS TO THE CHURCH.

During the first three decades of the Reform Schools existence in Germany, this relation never gave rise to any difficulties. There was a change, however, after the year 1848-49. The question is only interesting in so far as there are not a few ministers who ignore, and even despise, Reform Schools, because they are not "church institutions." We cannot but deplore their taking this view of the matter, because the Protestant Reform Schools in Germany, whoever may have founded them, are, in fact, religious institutions, though not founded, ruled and maintained by the church. The Reform Schools are religious institutions, because, resting on the same foundation as the church, they build up the kingdom of God here on earth,—His invisible church,—by seeking the lost ones, and by leading them again to the right path. They are also religious institutions, inasmuch as members of the church, in voluntary love, have founded and maintained them by their contributions and prayers; they are a com-

fort for those who seek in the church a saving hand for their children; they are a living testimony that faith is not yet dead. So they are entirely different from merely philanthropic and humanistic institutions, which, without leading to Christ, attempt to reform the youth entrusted to their care. The religious character of the Reform School demands that children of churches which, in principle, are opposed to each other, such as Catholics and Protestants, should not be received in one and the same institution. That the Protestant Reform School, with its inmates, takes part in the public services is understood, because it forms one of the families of the Christian congregation.

XV. ADMINISTRATION, FINANCIAL AFFAIRS AND PUBLICITY.

Great or small as the Reform Schools may be, they are nowhere merely private institutions, but aim at obtaining the privileges of corporations, that they may acquire real estate and legacies. The difficulties which are to be overcome in this respect are very great, especially when it is to be proven that the institution is in possession of a definite amount of property. The possession of real estate is, generally speaking, a vital condition for the continuation of a Reform School after the death of its founder. This property belonging to the Reform School, the regulation of other external affairs, the raising of the required funds, and the way in which they are to be employed, the installation or dismissal of a House Father,—all this, and many other things, demand an administrative body (*Verwaltungskörper*.)

We will not in this place criticise the way in which things have been managed hitherto, but much remains to be desired in this respect. Thus it has happened that well-meaning persons,—noblemen or owners of large real estates,—have founded a Reform School on their property, but did not regulate its ownership, and, after the death of the founders, the existence of such a Reform School has been seriously threatened by the heirs. The position of such an institution is very awkward, especially if no one has the will or courage to investigate the matter thoroughly. The House Father will find himself in the worst predicament, particularly if he have a large family of his own, as he is exposed to the entirely arbitrary treatment of persons who either take no interest in his school or hate it.

Next to the real estate, the finances are a fruitful source of cares and difficulties. This certainly ought not to be one of the duties of the House Father, as it has been in some places, where he has actually been forced to wander round from house to house, and collect contributions. As regards the raising of the necessary funds, the most natural way is to have the Reform School chiefly maintained by a number of wealthy benefactors. These generally agree to do this before the undertaking is commenced; but their number is gradually diminished by death, removal and other circumstances, and ought, therefore, to be continually recruited.

Another important source of income is the money paid for board. However, there should never be a certain fixed sum which is made the *conditio sine qua non* of a pupil's being admitted to the Reform School, as has been in some places. Where this sum is very high, as a natural con-

sequence, the number of pupils has been small, and, because the institution did not flourish, the contributions have gradually ceased to flow in. Then, suddenly, the very opposite course was pursued, by receiving pupils altogether gratuitously. This was not the right way either, and had not the desired success. Every Reform School should fix the number of children to be received at twelve, twenty, or twenty-four, etc., and make the rule, that children who are absolutely unable to pay anything should be received gratuitously, but that, on the other hand, parents should be reminded that their duty and honor as parents demands that they should not receive anything gratuitously for which they are able to pay. Then it must be ascertained what parents really can pay, be it ten, twenty, thirty, fifty, or eighty (Prussian) dollars per annum. In case the parents cannot pay, it will be well to gather a circle of friends who will undertake to make up an annual sum; and what is then still wanting must be paid by the voluntary donations, which will never fail if the institution is conducted in the right manner. If the Reform School has friends, it should always endeavor to increase their number, because love is inventive and rich in little helps, which, together, are an important aid. Such assistance by no means ought to be despised, as contributions in kind and gifts of clothes.

In addition to all this, there ought to be the produce of the garden and fields belonging to the institution. When new buildings are to be erected, love gladly lends a helping hand. On such occasions, an appeal in one of the papers will not be out of place. The longer a Reform School exists, the more it gains the confidence of the public, and the richer will be the contributions. Thus the more than 400 Reform Schools of Germany and Switzerland would, if built together, make quite a town, with a large amount of real estate. But, although scattered all over the German land, they form a grand monument of love and faith, raised under the blessing of God. Some of the stones of this building may crumble to dust, but the foundation of the whole will not be shaken, and newer and better ones will take their places.

In most Reform Schools an annual report of the financial status has been handed to the benefactors, and has also been published. If these reports were made out upon some uniform plan, it would be possible to show what the expenses are for one child in the various institutions; but the material for making such a computation is so imperfect, that no satisfactory conclusion can be drawn. To give an idea of the expenses of the Reform Schools in Wurtemberg alone, we will mention that the nineteen Reform Schools existing in 1844 expended the following sums:

For the first foundation of these nineteen institutions, 210,569 florins.

For maintaining them up to the year 1844, . . . 724,680 florins.

Total, 935,249 florins.

The annual expenses for one child seem to be eighty to ninety florins in the South of Germany, and from seventy to one hundred and twenty (Prussian) dollars in the North.

It will be evident, from what has been said hitherto, that the Reform School cannot have the character of a family living in seclusion. It is like a house with windows on every side, inviting all passers-by to look in.

From this circumstance springs the new, and by no means easy, task of guarding the children from all dangers which may result from this publicity. Especially if the Reform School be located in the neighborhood of some large city, there will scarcely be a day on which there are no visitors, frequently from all parts of the world. Visits of this kind cannot be in any way regulated; on the contrary, nothing that might interest strangers should be kept from their observation,—only, the proper regard must be had for the welfare of the pupils, which may easily be endangered if, for example, every casual visitor is allowed to engage in conversation with any one of the pupils on his past life, or if strangers wished to attend all the recitation hours.

To this must be added the monthly visits of parents and friends, which should always be kept up, but be under strict supervision. Nevertheless, it will be impossible to prevent the parents or friends from communicating to the pupils items of news and gossip, which the latter had better not know, particularly with regard to the Reform School, which is the frequent object of bitter attacks and misrepresentations in the local press. The children then become conscious of the fact that their persons attract the public attention. All this imposes upon the authorities of the Reform School a new moral and educational task, to accomplish which will be the duty of the House Father, and it will require a great deal of tact and knowledge of human nature to do this in a satisfactory manner, as, on account of the innumerable individual cases, no general rules can be laid down.

On the other hand, the authorities of the Reform School should encourage publicity on certain occasions, such as the annual festivals, when all benefactors and friends should be invited to take a share in the festive joys. On such a day the children should not be annoyed by examinations and catechising, but enjoy themselves in the full sense of the term, by singing and playing to their hearts' content.

In connection with the anniversary of the founding of the Reform School, a report on the past year should be publicly read. The tenor of it should be such as may be read before the children without giving offence; portions which touch on delicate subjects, but which, nevertheless, cannot be omitted in the report, may be left out in reading, but should certainly appear in print. Such a report ought to contain a full statement of income and expenditure, the names of the members of the administrative board, full statistics of the past year, and all occurrences, both sad and joyful, which may be of public interest. Sermons delivered on such festal occasions ought not to be inserted in it. The principal of the school should draw up the report, from material collected by the House Father, in the shape of a diary. If all the reports were made out on this principle, they would form quite a treasure of pedagogical experience. Amongst the best and most interesting reports, we mention those of the Reform School at Stammheim, near Calw (Wurtemberg), formerly edited by the late Dr. Barth; as, also, those published by the Swiss Society in Zurich.

XVI. THE FUTURE OF THE PROTESTANT REFORM SCHOOLS.

On the supposition that the Reform Schools will remain essentially Christian institutions, we would, in conclusion, mention a few *pia desideria*,

whose fulfilment ought sooner or later to be attained, if the whole cause is not to be endangered :

1. The future House Fathers, assistants and teachers should, both theoretically and practically, be prepared for their solemn calling, which is only possible if they are for a number of years co-workers in an institution specially established for this purpose.

2. The number of such institutions which are already in operation (the *Brüderanstalten*) should be constantly increased, and, by an interchange of the varied experiences, the system be constantly improved.

3. There ought to be a supervision of the Reform Schools, authorized both by the Church and the State, which supervision, however, ought not to have a bureaucratic character, but should, by the authority vested in it, be able to protect the liberty and private character of the institution, and make improvements where they are needed.

4. Only in this manner will it be possible to have a guarantee that those free boards of administration, which stand in need of such a supervision, at least fulfil their duties according to the statutes, for the benefit of the institution and its local administration, through and in reference to the House Father.

5. It becomes more and more necessary to grant the House Fathers some pecuniary assistance, particularly for the education of their own children, who cannot, without danger to themselves, remain at the Reform School. When House Fathers become superannuated, after many years of faithful service, they ought to receive a pension. This question has already been mooted at several conferences.

All these considerations combined, urgently demand that the hitherto existing isolation of the various Reform Schools should cease, and a lively and regulated intercourse of the various institutions and House Fathers should be inaugurated, so that one may learn from the other, and, from this interchange of ideas, derive new strength to pursue the work. This approach of the various institutions to each other may be brought about in a two-fold manner,—either by literary communications or by personal meetings. With regard to the first, we can here mention that already, for a number of years, the Central Committee for Home Missions, in the German Evangelical Church, (Berlin and Hamburg), has caused more than one hundred Reform Schools to communicate their reports to each other. A supplement to these communications is found in the *Fliegende Blätter*, ("Fugitive Leaves"), published by the Rauhe Haus. In the various German countries there are journals which give information concerning the institutions located in their district: *e. g.*, in Wurtemberg, the *Armenblätter*, ("Journal for the Poor"), by Dr. Hehn, and the *Christenbotte*, (the "Christian Messenger"), by Pastor Burk; in Bavaria, the *Puckenhofers Blätter*; in Baden, the *Reich Gottes*, (the "Kingdom of God"), by Rev. Mr. Mann; in East Prussia, the *Evangelische Gemeindeblatt*, etc. But, as yet, there is no general organ for the whole of Germany; neither are there any societies, as in England.

The great obstacle is the peculiar tendency of the German national character to take an interest only in their native town or village. Besides this, there are the many special ecclesiastical and political party-interests,

which throw almost insuperable difficulties in the way of such united efforts. Still, there has of late been some improvement in this direction, especially through the instrumentality of the societies for Home Missions, which have instituted annual meetings of House Fathers and representatives of the Reform Schools in the various districts. Thus the Brandenburg Society for Home Missions, the Pomeranian Society, the Silesian Society (meets in Liegnitz), the Conference for Home Missions at Baiersdorf, in Bavaria, and the annual meetings of House Fathers at Züllichow, near Stettin.

A subject often broached at these meetings is the idea of a uniform organization of all the Reform Schools, which, however, is more visionary, and will scarcely ever be realized. If the various groups of Reform Schools could, through a special journal, be more intimately connected, then there would at least be a sound preliminary base, on which the work of uniting the efforts already made might safely be built up. The foundation on which these institutions rest is such a good and lasting one, and the blessing which, so far, has attended the work is so evident, that, in casting a farewell glance at the Reform Schools of Germany, we cannot doubt that the work so successfully inaugurated, under the blessing of God, will continue to flourish in future times like a tree "planted by the rivers of water," constantly putting forth new leaves, flowers and fruits, and, till the end of days, continue to be a blessing to the German nation and its children.

X. EDUCATIONAL BIOGRAPHY.

JOHN M. KEAGY.*


JOHN M. KEAGY, M. D., a distinguished educator of Pennsylvania, was born in Martic township, Lancaster county, about the year 1795, of German descent on the paternal and maternal side, the name of his mother's family being Litzenberg. He died in Philadelphia, Jan. 16, 1837, and was buried in Laurel Hill Cemetery. In 1819 he published a series of educational articles in the Baltimore Chronicle, which he reprinted in 1824, in an octavo pamphlet of 38 pages. In 1827 he published his "*Pestalozzian Primer*," at Harrisburg, a book made up largely of the modern object lessons, but under the name of "Thinking Lessons," and "Lessons in Generalization." As soon as the child knows a vowel and a consonant letter, he is taught to read the syllables which they form, and in the Introduction, the author advocates the teaching of a child to read words "as if they were Chinese *symbols*," and without a previous knowledge of the letters, a practicable mode, as demonstrated by the doctor, and one which avoids the absurdity of telling a child that *see-a-tea* (which should spell *sate*) spells *cat*!

Dr. Keagy opened a Classical Academy at Harrisburg, where new studies and modes of instruction were introduced, such as the Natural Sciences, taught orally in an excellent conversational style, for there were no proper books at that period. Besides being a classical scholar, the doctor knew Hebrew, German, and French; he knew the principles of mechanics, and insisted that steam-boilers should have more fire surface. Had he been brought up a machinist, he would have invented tubular boilers, having constructed a copper model composed partly of tubes.

After some years of instructing at Harrisburg, the doctor went to Philadelphia to take charge of the Friends' High School, and whilst there, he was elected Classical Professor at Dickinson College, but did not live to act.

* We are indebted for this memoir to Prof. S. S. Haldeman, of Chickis, Lancaster County, Penn., who was a pupil of Dr. Keagy (the name rhymes *plaguy*) in his Classical Academy in Harrisburg, entering in June, 1826, and remaining two years.

Dr. Keagy was a man of deep and practical piety—a Methodist, but entirely free from the demonstrative and noisy characteristics of his denomination at that day. He had charitable feelings toward other denominations, and several times he went with a few of his boarding pupils to see the service at the Catholic church, where he conformed to the acts of the congregation; and he taught his pupils that simple politeness required such conformity when visiting the churches of various denominations.

Dr. Keagy had been a practicing physician with scientific tastes, but he left his profession for the more congenial one of teaching, and he became a great educator. His Academy was conducted on the monitorial plan, and he was well acquainted with European modes of instruction. With a delicate constitution, he succumbed to consumption, probably hastened by his labors in the school-room, where much of his time was given to passing from pupil to pupil. The academy was conducted on a plan of his own, the desks being  shaped, with places for nine pupils round the outside, and facing the monitor, who had a small separate desk opposite the opening. The hall had five such desks on each side, and was divided by a range of blackboards, at each end of which was a desk for the principal and assistant, who could thus see the entire room, while the blackboards were interposed between the male and female pupils.

This distinguished teacher was by many regarded as a visionary, one of the evidences being his belief that the time would come (I think during the then generation) when people could leave Harrisburg after breakfast, take dinner in Philadelphia, one hundred miles distant, and return for supper.

Publications by Dr. Keagy.

AN ESSAY ON ENGLISH EDUCATION, together with some Observations on the present mode of Teaching the English Language. By John M. Keagy. Harrisburg: 1824. (34 pages.)

PESTALOZZIAN PRIMER, or First Step in Teaching Children the Art of Reading and Thinking. By J. M. Keagy, M. D. Harrisburg: 1827. (126 p.)

THE INTRODUCTION, (p. v—xxx.) to Oswald's Etymological Dictionary. Philadelphia: 1840.

NOTE.

I add a note to pay a tribute to another accomplished instructor. Upon leaving Dr. Keagy I went to Dickinson College, where I became intimate with the Professor of Natural Science, Henry D. Rogers, subsequently a distinguished geologist, and professor at Glasgow. I am happy to acknowledge that to these two friends I am essentially indebted for my academic education.

S. S. H.

PERIOD II.—From 1789 to 1808.*

(1.) The *Constituent Assembly*, in which the French nation was represented for the first time by the delegates from all the interests and orders of society (600 deputies of the *third estate*, 300 of the nobility, and 300 of the clergy), who assembled in the Church of Notre-Dame on the 4th of May, 1789, as the States-General, and constituted themselves the National Assembly on the 20th of June, 1789, and took "a solemn oath never to separate till the constitution of the kingdom was established and founded on a solid basis"—at an early period directed the Committee on the Constitution to collect all the material for a proper consideration of the subject of public education, and report by bill. Attention to this great national interest had been demanded in the memorial of each of the three orders of the States-General which assembled in 1787, and by Turgot, in his memorable report in 1775. On the 25th of September, 1791, "citizen Talleyrand Perigord," titular Bishop of Autun, submitted a report in behalf of the committee, in which the whole subject—its origin, objects, organization, and methods, were treated with great ability. The essential features of a complete system, from the knowledge necessary to constitute a useful citizen and a good man, and the amusements of the whole people, to the fine arts and the highest branches of ancient and modern literature, and the further advancement of the sciences, were discussed and arranged with a fullness and logical connection not surpassed by any similar public document in any country at that date.

The bill (*project de loi*) which formed the conclusion of the report, embraced four academic grades. In the first rank were placed the *primary schools*, designed for the elementary instruction acknowledged to be indispensable to every citizen. The number was to be regulated by the administrative authorities of every department according to the demand of the municipalities. Then came the *district schools*, nearly similar to the ancient colleges in the part they played in the educational course. The third division was that of the *departmental schools*; which were to take the place of the university *faculties*. These schools were divided into four classes or categories; *schools for the ministers of religion, medical schools, law schools, and military schools*. The fourth division was occupied by a *National Institute* which took the place of the academies, learned societies, the College of France, the *Jardin des Plantes*, and other establishments of superior instruction. The education of women formed a separate part of the bill, which also connected the national holidays with the domain of public instruction. In conclusion, a council composed of six members or commissioners, assisted by inspectors, and placed under the direction of the executive power, was authorized to put the system into operation, and regulate its progress.

The project was enthusiastically welcomed; yet the Assembly which

* We follow closely Prof. Vallet de Virville's (*Histoire d'Instruction Publique*,) account of this period of the educational history of France, for which his connection with the *École des Chartes* gave him ample material.

approached the limit imposed on its labors, did not pass the ordinances necessary to enforce it or give it a legal character. It simply embodied in a decree, (Sept. 3, 1791,) these two principles: "1. A public instruction shall be established common to every citizen, gratuitous in respect to those branches which are necessary to all men, and whose establishments will be gradually arranged in accordance with the divisions of the kingdom. 2. National holidays will be appointed (*decret* Sept. 3, 1791);" which became part of the fundamental propositions of the constitution. The Constituent Assembly ended Sept. 30, 1791, and the Legislative Assembly was opened the following day.

(2.) On the 20th of April, 1792, Condorcet in the name of the Committee of Public Instruction, read to the Legislative Assembly a second report which was also followed by a *projet de loi*.* The report and plan was the product of one of the most just, enlightened, and original minds of the age, a brief synopsis of which we give in the language of Prof. Viriville.

The plan instituted five grades of schools in which the instruction was to be progressive. 1. *Primary Schools*; 2. *Secondary Schools*; 3. *Institutes*; 4. *Lyceums*; 5. *National Society of Arts and Sciences*.

The *Primary School* receives children at the age of six years. Every village containing over four hundred inhabitants must be provided with one. Tuition will be given in the rules of arithmetic, the first elements of morality, the rudimentary knowledge of natural science and economy, essential either to agriculture, arts, or commerce, according to the rural or manufacturing occupations of the population. Religion will be taught in the churches by the respective ministers of their different creeds. A small collection of books will be furnished to each school for the use of the children. In *Secondary Schools*, the tuition comprehends grammar; the history and geography of France, and the neighboring countries; drawing; the principles of the mechanical arts, some instruction in moral and social science, with the explanation of the chief laws and regulations of agreements and contracts; the elements of mathematics, natural philosophy, natural history applied to the arts, manufactures, and commerce. Every secondary school will have a library, some models of machinery, and some philosophical instruments. There will be one at least in every district, or a school for every four thousand inhabitants. *Institutes*. The studies are divided into four classes, 1. Mathematical and physical sciences. 2. Moral and political science. 3. Application of the sciences to the arts. 4. Literature and the fine arts. Every institute is furnished with a library and a collection of machines and scientific instruments, with a botanic, and agricultural garden; these three collections are public. There will be at least one institute in each department. *Lyceums*. The same plan and arrangements as in the Institutes but on a grander scale, in the extent and profundity of the studies. There should be nine lyceums in France, distributed in different parts of its territory. *National Society of Arts and Sciences*. It was actually the Institute enlarged and connected by a close and direct link to instruction and practical science. Its duty was to direct, oversee, to simplify and increase general education. This supervision and directorship was to transmit from the highest to the lowest, from grade to grade, to the inferior ranks of the hierarchy. The law recognized beside these establishments, five societies to encourage the progress of science, letters, and art, but with limited range. *Ways and Means*. Instruction in all its degrees is gratuitous, and the appropriations necessary for this purpose was estimated at twenty-nine millions of francs. From this sum a periodical allowance of one million three hundred thousand francs is devoted to the *Élèves de la patrie*. Condorcet ranks under this term, those penny-

* The work of Condorcet was to be confined to that which regards the general instruction of youth. The Assembly ordered "the Committee of Public Instruction to consider separately the bills concerning national holidays, the gymnastic part of education, the completion of female education, schools for artillery, engineering, navigation, roads and bridges, schools for the deaf mutes and the blind, &c.

less children who distinguish themselves, at the beginning, or at any point whatever in their studies, and to whom the state furnished aid in the form of a stipend, in order to permit them to pursue, sheltered from need, the degrees of scientific apprenticeship remaining to be overcome.

The gravity of political events which daily succeeded each other prevented the Legislative Assembly from completing the work of its reporter.

(3.) Eminent men belonging to the different divisions of the National Convention, Rabaud Saint Etienne, M. J. Chenier, Gregoire, Fourcroy, Lakanal, brought forward, among the feverish senseless Utopianisms, some lofty and healthy views, eloquent words, and sentiments drawn from the noblest inspirations of the human conscience. More than one measure, decreed and enacted by the government, evinced an admirable fertility of resource, a creative faculty in legislation, which was able to strike from science and the spirit of patriotism the spark suited to serve the needs of the hour.*

Although no formal law remains as the creation of this distracted period, to assure to each new generation the calm benefits of instruction and study, the report and law of Daunou [Oct. 25, 1795], deserves special mention. We make a few extracts from the report—bearing directly on liberty of instruction (which it has been the weakness of the French system to deny to parents, and to restrict in teachers by programmes),

* Nothing characterizes this period better, in regard to the institutions of public instruction, than the *School de Mars*. The convention decreed its opening by a law of the 18 Prairial, year II, (June 1, 1794,) on the report of Barrere. This school was situated in the plain of Sablons, and was composed of about 3,500 young persons from 16 to 17 years of age, called arbitrarily from all parts of France to be specially exercised in infantry, cavalry, and artillery tactics. The capital furnished 80 pupils, and the contingent of every district was fixed at six. The camp, which extended between Paris and Neuilly, was limited by the forest of Boulogne; it was enclosed by palisades and *chevaux de frise*, and the pupils were forbidden to overleap the barriers. Placed under the orders of the General La Bretteche, and under the special oversight of two members of the convention (Peysnard and Lebas) commissioned to the school, the pupils of Mars were subjected to severe discipline. Apart from drill and manoeuvre, they received very succinct information in tactics, administration, military engineering, agriculture, philosophy, and chemistry. The general muster took place in a great hall, formed of planks and canvass, in the midst of the camp. Inside it was arranged, on one side a stage for the chiefs or instructors, on the other in form of an amphitheatre. The colossal statue of liberty, as well as the images of the young Barra and Viala formed its decoration. Entrance to the camp was forbidden to all outsiders, and the members of the convention themselves could not always obtain leave to enter. The pupils more than once appeared on the public holidays, when their costumes composed by David attracted all eyes. A short tunic open on the breast; a broad belt of imitation tiger's skin, holding thirty-two cartridges; tight-fitting pantaloons; hussar boots for the cavalry, square shoes and half gaiters for the foot-soldiers; a cravat of scarlet wool, falling and fastened on the breast; a light shako; a Roman sword, held by an ornamented belt, bearing these words—*Liberté Egalité*; such was their uniform. The events of the 9 Thermidor were among the essential causes of the short duration of this institution; it was then denounced as a nursery of sedition which favored Robespierre. A decree of the convention issued 2 Brumaire, year III, on the motion of Guyton Morveau, finally allowed these young men to return to their families.

† A new calendar was introduced by a decree of the convention, Nov. 24, 1793—the year I of the republic commencing with the autumnal equinox of 1792, which fell on the 22d of September, at 13 minutes and 30 seconds after 9 A. M., Paris time—the day on which the first decree of the new republic was promulgated. The year consisted of twelve months of thirty days—leaving in leap year 6 days to be devoted to national festivals. The year was divided into four periods of three months each: AUTUMN—from Sept. 22 to Dec. 22; *Vendémiaire*, vintage month, (Oct.); *Brumaire*, foggy, (Nov.); *Frimaire*, sleet, (Dec.); WINTER from Dec. 22, to March 22—*Nivôse*, snowy, (Jan.); *Ventôse*, windy, (Feb.); *Pluviôse*, rainy, (March); SPRING from March 22 to June 22—*Germinal*, bud, (April); *Floréal*, (May); *Prairial*, meadow, (June); SUMMER from June 22 to Sept. 22—*Messidor*, harvest, (July); *Thermidor*, hot, (July); *Fructidor*, fruit, (Sept.). This calendar was abolished under the empire by decree of the Senate, Sept. 9, 1806.

and the importance of good teachers to the success of any system, and of special scientific studies.

Among the projects of public instruction, so multiplied during the last two years, are two, to which your committee have thought it proper to pay particular attention. The first, presented by Talleyrand to the Constituent Assembly at the close of its session, is a monument of national literature which a single century may be proud to hand down to posterity, together with the preliminary discourses of the encyclopædia; it is a bold and vast portico of human knowledge, though the style of architecture is too ornate and brilliant. While the report is a magnificent sketch of public instruction, and in a manner the itinerary of its future path, the scheme of the decree with which it closes, does not present happily or practically a legislative scheme for the material organization of instruction. A too great respect for ancient forms, the attempt to surround the teachers with limitations and bounds, the desire to multiply officers without duties, and bureaux ministerially literary, all these disappointed the closer scrutiny of the practical educator astonished by its most majestic opening.

An opposite fault may be attributed to the plan of the unfortunate Condorcet, that republican scholar, who, prescribed, exiled, and even in the arms of death still occupied himself with the future happiness of his country, and the development of a noble system of human perfectability. Condorcet, the foe of corporations, consecrated one of them in his scheme of national instruction he labored to found in some sort an academic church; the enemy of kings, he desired to add to the balance of public authorities, a system of public education of more than royal, exclusive authority in a free constitution. He was sufficiently reproved by the alarm which its announcement inspired among all the friends of liberty.

Your committee in reviewing the project before presented by them, have aimed to reconcile the demand of public security and national glory in provision for universal education, and the highest scientific attainments necessary for public works, with the practice of individual liberty, which a republican constitution is designed to guarantee. In so doing we have availed ourselves of the suggestions and plans of Talleyrand, Condorcet, and others, neglecting those of Robespierre alone, whose stupid tyranny, and barbarous disposition, would make school attendance a painful servitude to children, and home instruction, one of the holiest functions of paternity, a penal offence. Liberty of instruction to parents and teachers—a wide scope in the detail of management and method to municipal authorities and individual schools, are cardinal features of our plan. * *

I will not occupy your attention here with the primary and central schools, whose organization has for a long time been known to you. We have found means to perfect them by collecting the observations of five of our colleagues sent by you six months ago into the departments to prepare there the foundation of these schools. They have made us acquainted with the difficulties of execution which they have often encountered, and have concerted with us the measures most proper to spread with efficacy the benefits of public instruction over all points of your immense territory; but it must be said, the success of these schools depends above all upon the choice of good teachers, the fostering care of the government, and the character of the elementary books selected.

The third chapter [titre] of the project of the law which I am about to submit to your discussion, has for its object the special schools,—that is, those particularly dedicated to the exclusive teaching of one science, art, or profession.

The system of special schools, too little known, or at least too rarely adopted till now, directs more immediately, more actively, the efforts of the mind toward particular objects; it incessantly animates emulation by the always useful spectacle of a goal near at hand; it destroys the seductions of indolence, by retaining under the eyes of the pupils the prospect of success, reputation, and fortune; by concentrating the force which is too apt to be dissipated over many subjects it diminishes the number of mediocre men in all fields, and augments to the profit of the national glory and of public utility, the number of superior men.

It ought to be easy to inaugurate this species of instruction amidst a people that desires to shake off every prejudice, to deprive of homage and even of respect every kind of inconsiderate action. In the special schools science will be most reasonably and least fantastically revered. No longer will altars be built except where beneficence can be appreciated. No longer will superstitious reverence, but gratitude be entertained for mercies and benefits received.

Finally, it is impossible to calculate the happy results of a system which ought to keep the sciences and the arts in perpetual union; and to subject them to a habitual reciprocal reaction of progress and usefulness.

We have borrowed from Talleyrand and Condorcet the plan of a national institute; a grand and majestic scheme, the execution of which ought to outshine in splendor all the academies of kings, as the destinies of republican France outshine already the most brilliant epochs of monarchic France. This is in a manner to be the world of science in miniature, the representative corps of the republic of letters, the honorable goal of all the ambitions of science and of talent, the most magnificent recompense of great efforts and great success; it will be in a manner a temple of reason, whose portals always closed to the voice of intrigue, shall be opened only at the conscientious summons of deserved renown.

This institute shall reconcile all branches of instruction; it shall impress upon them the only unity which does not sadden genius nor restrain its flight; it shall make known all discoveries so that which is nearest to perfection may be most highly esteemed and may become universal, because it shall be felt to be the best.

You will see tending to this common centre, and tending thither by a rational and necessary inclination, all which every year shall bring forth that is grand, useful, or beautiful, upon the fertile soil of France. Here skillful hands shall divide, diffuse, and spread over all these treasures of science and reason; these enlightened bestowers of the crowns of talent, lighting on all sides the fire of emulation, shall call out the wonders which French activity needs and has the power to produce. There the men most worthy of being united shall meet, shall each encourage and comprehend the other; they will find themselves united as the representatives of all species of literary fame; and truly it is time that the strife for glory should feel the influence of universal equality, and that she may open at once her temple to the scholar who reveres Racine, to the orator, the historian, the artist, the renowned actor who recreates the masterpieces of the stage, in giving them the soul of gesture, glance, and speech, and who thus completes Corneille and Voltaire.

In the meantime, citizens, in the plan which we propose to you, the republic reserves many other means of encouraging the progress of the sciences of letters and of arts; she encourages effort; she recompenses success; she contributes with discernment to all the expenses of instruction; to those honorable investigations, to travels of research, to those severe experiments by which genius interrogates nature, calls forth truth, enlarges in the human mind the faculties of thought and knowledge; she awakens on all sides the power of emulation, that generous sentiment, the purest principle of human activity, without which social equality would be like the bed of that tyrant who mutilated his victims; in fine she distributes and spreads abroad over different points of the land the most instructive monuments of nature and of art, and above all, books, that heritage of the ages, which forms to-day one of the most precious parts of national wealth.

It is by these means, Representatives of the people, that you are about to multiply, and disseminate the causes or at least the occasions which aid the birth and development of talents, and intimates to them their destination, their tastes, and their might.

But the most powerful means of public education is in the establishment of national feasts. There nature is truly manifested and animated, that nature of which books reflect only obscure and indistinct images, even when they do not present her under false and deceptive aspects.

Receive then into the bosom of France those brilliant festivals which once offered to the assembled communities of Greece the ravishing spectacle of all pleasures, all talents, and all glory. I do not know if there be in the annals of the world pictures more thronged with life and with feeling, more fit to give to the members of humanity the consciousness of their power and their faculties; better able to awaken in genius profound sensations, of leading it to great and august thought, than those ancient games which have connected with the names of certain small communities immortal memories. You have but to will it, and these wonders shall be born again in the midst of your departments. Do you not dwell in a smiling and abundant land? Do you not find an active and industrious people? Surely if to any other, it belongs to that people, to display in the eyes of the nations and the ages a rich and productive activity, and of measuring the long duration of its liberty and its glory by the periods of its emulation and its solemn pleasures. Renew,—the time has come, these institutions produ-

tive of weal; bring together there the exercises of every age, the music and the dance, the race and the contest, the military evolutions and the scenic representations; display there the wealth of the population, of industry and the arts; let the national activity come there to exhibit the measure of its progress in every field; let commerce bring there the products of the manufacturer; there let artists bring their masterpieces, and sages their discoveries, while history, poetry, eloquence shall proclaim the triumphs of liberty, and shall adorn with imperishable splendor, all that shall have been great, useful, republican, and generous.

The plan which it is my office to present to you has at least this advantage, that it brings into clear view the fact that these national solemnities may exist without putting them into opposition with the private exercises of religion. Moreover, what we propose to you is only a beginning which ought in better times to receive further developments. In the midst of different beliefs, freely exercised, but subject to the laws of the republic, patriotism will soon become the common creed of all the people of France.

Representatives of the people, after so many violent shocks, so many unquiet suspicions, so many necessary wars, so many justifiable challenges; after five years so full of agony, effort, and sacrifice, the need most universally felt is no doubt that of kindly feeling, of mutual approach and union, of repose in the bosom of gentle passions and peaceful sentiments.

But, what shall exercise this ministry of general reconciliation better than public instruction? Is not education the centre whither should tend from all parts those at least who have not been divided by the counsels of prejudice? Is not the temple of arts the necessary asylum where all those who are worthy of working a great influence upon their country should make haste to unite, since, after all they must consent to see themselves at some time mingled together in the same records of glory; and since, despite their transitory differences, the same calendar of immortality shall receive their names and deeds?

Yes, it is reserved to letters to perfect the revolution which their champions have commenced, to extinguish all dissension, to re-establish peace amidst all those who nourish them; and none can doubt that in France, in the eighteenth century and under the empire of reason the peace of enlightened men shall be the signal of the peace of the world.

In spite of its efforts, and its power, the revolution, which had created a new France, heaped up ruins mainly in regard to public instruction. It was in vain that a decree of the 13th of October, 1790, ordered that while awaiting the operation of the new establishments, the old schools should re-open as formerly; it was in vain that a law of the 21st of January, 1792, granted a sum of a hundred and fifty thousand francs, from the public finances, in order to meet the expense of the colleges. The universities, constrained particularly in their moral life, deprived of this consciousness of their future, one of the primordial elements of the existence of institutions, as of man, died, so to speak, voluntary death. The decrees which suppressed the academic tribunal (22d February, 1792), after having placed the colleges under the surveillance of the administrative authorities (23 October, 1791), those who were connected with the abolishment or redemption of Feudal tenures (1789-1792), with the civil oath of the ecclesiastical founders (April, 1792.) the law of the 8th of March, which ordered the sale of the college effects for the benefit of the state, had in other ways seriously disorganized the mechanism of these establishments.* At last

* May 17, 1793, on a motion of Lakanal, the Academy of Sciences was excepted, by a conventional decree, from the law which had previously interdicted the ancient learned societies from proceeding to the election of new members. Then it was that Carnot, Monge, Chaptal, Berthollet, Fourcroy, etc., organized victory, by the revolutionary improvisation of the discoveries which are usually the fruit of long and calm research, and which suddenly enlarged the domain of science.

after one of these fleeting decisions (15 September,) which constructed on paper a new system of public instruction, a decision which was destined to repeal the next day, the Convention pronounced the abolition of all the colleges in full operation, and the faculties. So perished the ancient *University of Paris*, so perished the similar institutions to which it had given rise; without even the nominal honor of a death-sentence, and without the special exertion of any power for that end.

The 9 Thermidor (27 July, 1794) was about to close by a sudden crisis, the bloody period of the revolution. After this period the soil began to be slowly strengthened, and the laborers of the future could work on a firmer basis. After the 14 Fructidor following, Fourcroy, bringing vividly before the convention the educational destitution which threatened to plunge France anew into the darkness of barbarism, entreated members to prevent an event so shameful. At the same time Giraud (*de l'Aude*) earnestly desired that their sittings every ten days might be devoted to public instruction. After these appeals the convention returned to the work with fresh ardor, and the first fruits of this zeal (9 Brumaire, year III, Oct. 30, 1794,) was the creation of the Normal School designed to train a body of professors. On the 17th of November, (27 Brumaire, year III,) the establishment of primary schools was ordered. New medical schools, entitled *Schools of Health*, were opened by Law of 14 Frimaire, year III, or 4 Dec., 1794. The law of the 7 Ventose (year III, 25 Feb. 1795,) organized Central Schools which were to succeed the former colleges. The Polytechnic school, the schools of mining, of civil engineering, the hydrographical engineers, were founded by the decree of the 30th Vendémiaire, year IV (22 Oct. 1795). At last, on the 25th of Oct. 1795, (3 Brumaire IV,) appeared the great law of public instruction founded on the report of Daunou. This law formed five degrees, or classes of establishments; primary schools, middle schools, special schools, free establishments, and over all the National Institute of France. To these creations may be added the Museum or conservatoire of the arts (20-23 Feb. 1793. and 27 Nivôse year II, 16 Jan. 1794); the school of living Oriental languages (10 Germinal, III, 30 March, 1795); the Course of Archeology in the National Library (Law of 20 Prairial, III—8 June, 1795); the Bureau of Longitude (11 Messidor, III—29 June, 1795); the collection of Archeological Monuments, known as Museum of the Petits Augustins; * the Conservatory of Music reorganized on a grander scale (18 Brumaire II, and 16 Thermidor III—8 Nov. 1793, 3 Aug. 1795); the Veterinary Schools (17 Vendémiaire 2 Floréal, III—8 Oct., 1794, 21 April, 1795); the Conservatory of Arts and Trades (19 Vendémiaire, III—10 Oct. 1794); the Museum of Natural History (21 Frimaire, III—11 Dec., 1794);

* Erected by a law of the 29 Vendémiaire, year IV (Oct. 20, 1795); organized in 1796 under the minister Bénézech, by the efforts of Alexandre Lenoir; suppressed by the restoration in 1816. A resolution of the Committee of Public Safety established at Meudon (10 Brumaire, III, Oct. 31, 1794,) a National Aerostic School for the use of armies. It consisted of 60 pupils divided into two companies of aerostats. This establishment lasted three years, and disappeared about the time of the fall of the Directory.

the National Library (25 Vendémiaire, IV—17 Oct., 1795) as well as other public libraries; even this enumeration does not exhaust the services rendered to science, letters, and art, by this "tireless areopagus," which closed its sittings on the 26th of October, 1795, and was succeeded by the *Directory*, the heir of the executive power, which the convention had accumulated in the constitution of the year III.

(4.) One of the earliest acts of the *Directory* was to inaugurate the National Institute* by naming forty-eight members, who assembled 15 Frimaire, year IV (Jan. 3, 1796,) at the convocation of Bénézech, minister of the interior, and elected 96 associates who together composed the 144 resident members. The institute was then divided into three classes: 1. Physical and mathematical science; 2. Moral and political science; 3. Literature and the Fine Arts. Each class was divided into sections. The first public sitting or seance of inauguration took place with great pomp and splendor the 15 Germinal of the same year (April 4, 1796). The Conservatories, Museums, Veterinary Schools, Schools of Health, Polytechnic School, Schools of Oriental Languages, etc., entered on their duties at the date of the decrees which had instituted them. But other establishments did not spring into being with the same facility or promptitude.

The normal school established at Paris without any clear idea of the practical necessities which it was to provide for, lasted only a few months and was discontinued by a decree of the 7 Floreal, year III (April 26, 1795).

The law of 7 Ventôse, year III, which established the central schools, defined their plan in a very vague and general manner. They were to be distributed in the proportion of one institution for every three hundred thousand inhabitants,—each to have fifteen masters to teach as many courses on subjects, whose connection and gradation was not clearly defined. By the law of 3 Brumaire, year IV, the course of study was modified and divided into three sections or series. The first, to which pupils were admitted under the age of twelve, comprehended drawing, natural history, ancient and living languages. To enter the second the student must have attained his fourteenth year; the course comprised the elements of mathematics, natural philosophy, and experimental chemistry. The third series, open to pupils of sixteen, embraced general grammar, literature, history, and legislation. In the year IV out of 105, viz. 5 in Paris, and one in the chief town of every department, only one was organized. Forty central schools

* The Institute received its final organization by decree of Pluviose in year IV (Jan. 23, 1803). It was then divided into four classes, viz: 1. Physical and mathematical science, of 66 members; 2. French language and literature of forty members; 3. History and ancient literature of 40 members; 4. Fine arts of 28 members. Under Napoleon the name was changed to *Imperial Institute*; by royal ordinance, the name *institute* was applied only to the whole body, and the first rank was assigned to the *Académie Française*, which is charged with the composition of the French Dictionary; the next, to the *Académie des Inscriptions et Belles Lettres*, to which is entrusted the erection and conservation of public monuments; the third, to the *Académie des Sciences*; and the fourth, to the *Académie des Beaux Arts*. To each academy was attached ten honorary members. Each can elect any number of corresponding members.

were inscribed in the national almanac in the year V; fifty-two in the year VI; fifty-nine in the year VII; eighty-six in the year VIII; and ninety-one in the year IX. But the institution was not eminently successful,—it had neither external administration nor interior discipline. Every professor, equal in authority to his colleagues, governed a part of the school. The law only regarded day-scholars; the government showed an intention of attaching a *pensionnat* to every school; but this idea was not wholly realized. The pupils, from twelve to sixteen years of age, were left to their own free will. The instruction of the central schools supposed previous study and attainments which in fact had no existence. These were the chief reasons why the central schools languished and dissolved.*

The hindrances to the development of public primary schools were still more formidable. The law of 27 Brumaire, year III, which had been preceded by three others with the same title, was modified in the year following (3 Brumaire, IV,) by which each commune was required to provide a locality for the elementary school; and a previous provision appropriating the priest's house for this purpose, was repealed. Not only were places thus left unprovided, but the thousands of teachers and functionaries competent for work so delicate, austere, and unprecedented in the habits of the nation, could not be had in time of war, and in a country so disturbed by many causes. Fortunately under these circumstances many boarding schools and other private institutions remained and were well frequented, and thus perpetuated the habits of instruction among families in spite of the chance or languishing condition of the public establishment. Thus the system of public instruction in its higher, as well as in its lower institutions, remained undeveloped, when the democratic phase of the revolution ended, and the will of one man again absorbed the government and destinies of France.

(5.) One of the earliest labors, in which the organizing talent of the First Consul was displayed, was in the restoration and perfecting of public instruction. Amongst the colleges of Paris was one which, founded in 1567 and recognized by successive kings, had survived all the storms of the revolution—the *Louis le-Grand*, but known in the times of the Convention as *College de l'Égalité*, and under the Directory the *Institut des Boursiers*—from whom it received a grant of 200,000 francs together with the buildings of the ancient college. In the year VI it received from the Minister of the Interior, the designation of French Prytaneum (*Prytanée Français*), and its scholarships were all given to the sons of soldiers. By an order of the consuls, 1 *Germinal*, year VII (March 22, 1800), it was divided into four sections. The first was maintained at Paris in the same locality; the second at Fontainebleau; the third at St. Germain; and the fourth at St. Cyr. A few weeks later a fifth was established at Brussels, and a sixth devoted to the mechanical arts and navigation, at Compiègne. A hundred

* Killan (secretary of M. Villemain, minister of public instruction). *Tableau historique de l'instruction secondaire*, etc., 1841, p. 78.

bourses were created in each of these colleges for the children of the servants of the republic, and a hundred other places were open in families for the reception of boarders at the rate of 900 *fr.* in Paris, and 800 *fr.* in the departments. The section of Compiègne received 300 pupils, and the price of board was fixed at 500 francs.

These schools were organized on the military form. The scholars divided into companies, each with a sergeant, three corporals, and twenty-one fusileers, assembled at the beat of the drum. A military dépôt was established in every *prytaneum*, and the scholars were exercised in infantry drill. When any important news occurred, any event touching the military reputation of the nation, it was read at dinner. At the close of the scholastic year there was a military parade, when the scholars executed publicly, strategic evolutions. Every *prytaneum* comprised two upper classes. In the first the instruction was of the usual description. It embraced the literary elements (French and Latin), drawing, and arithmetic. The second or higher class, was divided into two subdivisions, one for the civil, the other for the military career. The civil section had four classes, two in polite literature, a third in rhetoric, a fourth in philosophy. The military division followed a course of three classes, geometry, algebra, trigonometry, the elements of statics, chemistry, natural philosophy, astronomy, fortifications, and the artillery drill. German and English were taught in both divisions. Readings, and mnemonic recitations from the great writers of all ages, and the lives of illustrious men, completed the literary part of this instruction. The uniform term of these studies was limited to the age of eighteen. At the close of this period the civil scholars were placed in the special schools, in the government situations and in public educational establishments. The military pupils entered the service as sub-lieutenants of infantry, or continued their studies when they aspired to special service.

The *Prytaneum* of Compiègne was reserved for the arts, trades, and navigation; and its pupils finished their elementary instruction at the age of fourteen. Those who showed an aptitude for mechanics, were apprenticed to private masters, with whom they continued their college studies for three years, receiving at the same time a professional and practical education. When this period expired they were employed in the national manufactories and workshops, or in the public service on land or at sea.*

The students of navigation passed through three successive classes or years of study. They were taught in the first, geography, uranography,

* The establishment at Compiègne was completely organised by the minister Chaptal, (*arrêté* of 6 *Ventose*, year XI, Feb. 25, 1803,) and became the type of the French schools of arts and trades. It was removed to Châlons-sur-Marne in 1806. An imperial decree of the 18 May, 1806, commanded the institution of a similar school in the buildings of the old abbey of St. Maximin, near Treves, department of La Sarre. It was contrived to receive four hundred pupils, and was to educate professionally the children belonging to the thirteen Germanic departments recently added to France. A third school of arts and trades was established in 1811, at Beaupreau (Maine and Loire), and removed to Angers in 1814. These schools are now the imperial schools of arts and trades.

drawing, hydrography; in the second, geometry, and algebra; in the third, the theory of logarithms, their use, and the elements of astronomy. At the age of fifteen they were placed at the disposal of the Minister of the Marine, who, after a close examination, put them into service on board the state vessels.

These various steps were only the heralds of a grand reorganization of secondary education. An early plan of general reorganization was drawn up by Chaptal, then counsellor of state, charged with the affairs of public instruction, and read in this council. But besides the initiative of the government and its surveillance, the author of this work strongly demanded liberty "for every one to open schools, and admit the children of all those who may not have the necessary degree of confidence for the public teacher." Such an opinion did not suit the First Consul who already meditated the empire. The plan of Chaptal was discarded to swell the number of unfruitful conceptions elaborated by his predecessors.

Fourcroy, who had also formed one of the Council of State from its creation in 1791, was commissioned by Napoleon to present a new project to the legislative corps. The latter, more fortunate, was made a law 11 Floreal, year X (May 1, 1802), and till quite recently formed the foundation of the legislation regarding secondary institutions.

The law of May 1, 1802, is divided into nine chapters. The first (I) recognizes *three degrees of education*: 1. Primary schools instituted by the communes. 2. Secondary schools established by the communes or kept by private masters. 3. Lyceums, and special schools maintained at the public expense. Chapter II treats of *Primary Schools*; but the time had not yet come when the enactments of the legislator on this difficult, fundamental subject, could be realized in results of any great importance. The other chapters are devoted as follows: Chapter III, *Secondary Schools*; IV. *Lyceums*, V. *Special Schools*; VI. *The Special Military School*; VII. *The National Pupils*; VIII. *The nationales pensions*; IX. *General regulations*.

Every school established by the communes, or kept by private individuals, in which Latin, French, geography, history, or mathematics were taught, was considered a Secondary school. The government undertook to encourage these schools by local grants for buildings, by the distribution of scholarships or bourses in the lyceums, and by donations awarded to the most skillful masters. The license, authority on the part of the managers to begin and employ teachers, was bestowed on these establishments, and the prefects were instructed to oversee them.

As to the Lyceums, their number and situation were not determined. The experience of the past, the insufficiency of local resources, the uncertainty of everything counseled this wise forbearance. The law only prescribed that at least one should be established by the court of appeal. The general course of study comprehended the ancient languages, rhetoric, logic, belles-lettres, ethics, and the elements of mathematical and physical science. There were also in every lyceum, drawing

masters, drill masters, and masters in deportment and accomplishments.* There were four divisions of scholars, 1. state pupils (*boursiers nationaux*); 2. the pupils from the secondary schools admitted free, by competition; 3. boarding scholars; and 4. day pupils, both of whom paid a tuition. In every establishment a *council of administration* was formed, of the principal, censor, and procureur general or steward. Besides, there was an external upper lyceum council, or board of administration, composed of the prefect and two magistrates. Three general superintendents of studies (*inspecteurs généraux*) were instituted, to oversee in the name of the state, every part of the administration and teaching, and maintain order throughout the whole. A glance at this brief analysis of the law of 1802 will disclose the stamp of the high administrative capacity of the First Consul. The many great defects of previous legislation received from these new prescriptions an efficacious remedy, and the modern features were happily combined with the ancient principles tested by time and experience.

Immediately after the adoption of the legislative measure presented by Fourcroy, the author was named Director General of Public Instruction, and displayed great administrative talents in its execution. According to this law, besides the *general superintendents*, three commissioners taken from the institute were added to them. Both shared various duties and undertook the work with zeal and diligence under instructions from the government. The material, the body of professors, rules of administration, detailed course of study, selection, composition, printing of class books, all was created, prepared, combined with rapidity which required both thought and prudence. In the course of the two years 46 lyceums, 378 secondary schools, 361 private schools, comprising in all seven hundred and eighty-five establishments, were opened in 131 departments, then embraced in the limits of France. The three central schools of Paris, without changing the locality, became the lyceums, Napoleon, Charlemagne, and Bonaparte. Other central schools were replaced in the same way.

The section of St. Cyr and Compiègne were alone preserved, one under the name of special military school, the other with the title of school of arts and trades. The students of the other institutions were divided among the new lyceums. Six thousand four hundred pupils were maintained by the state, to wit: 2,400 selected by the government among the children of citizens who had served the republic, and 4000 chosen among the pupils of the secondary schools. The same law had a chapter on special schools.

The European wars into which France was plunged by the revolution had suddenly drawn the attention of the various governments to establishments for military education. On the 9th of September, 1793, the Convention suppressed all the military schools of the monarchy excepting *Auxerre*, which was preserved provisionally. A decret of 18 Brumaire, year II, placed the Institution of *Orphelins de la Patrie*, founded during the reign of Louis XVI,—under the direction of Leonard Bourdon, and gave it the

* The law is silent on religious teaching. A decision of the executive power, 19 Frimaire, year XI, (Dec. 10, 1802,) introduced a chaplain into every lyceum

title of *Société des Jeunes Français*. This school was united, 20 Prairial, year II, to that of the *Enfants de la Patrie*, which dated from the same period, and was situated at Liancourt. By a resolution of the government, 8 Pluviôse, year XI (Jan. 28, 1803), 600 pupils of the latter institution were removed to the newly established school at Fontainebleau, which ended by becoming incorporated with the school of St. Cyr.* We have already indicated as the work of the Convention a mixed establishment designed for recruiting the various corps of public service. Known at first under the name of *school of public works*, then of the *polytechnic school*, that it still bears, this establishment chiefly owes its origin and organization to the zeal of Lamblardie, a pupil of Perronnet, and of Carnot, assisted by Monge Fourcroy, Prieur (of la Côte d'Or,) and others. From the lectures and activity of such masters the school soon acquired the distinguished rank it still maintains. Such an institution could not be disregarded by Napoleon who cherished it with care, calling it his *hen with golden eggs*.

The necessities of war determined also the reorganization of medical instruction. After having suppressed the old medical faculties which had become very unsound, the convention soon felt the need of forming establishments to furnish medical and surgical aid to its fourteen armies, which it did by instituting *Schools of Health*. These schools, organized with the enthusiasm and energy which characterized all public acts of this period at once rendered invaluable services. The pupils hastily acquired the knowledge indispensable for the field and the hospital, and set out at once for the battle-field, where they hardly sufficed for the terrible waste of human life. This met the urgent necessities of the time, but the civil medical science was abandoned to intolerable anarchy. By the attention of Fourcroy, and according to the promise of the law of 1802† the three schools of Paris, Montpellier, and Strasbourg were reorganized; instruction in the medical art was at the same time regulated by new arrangements.

The teaching of law remained in the same state as medicine. Napoleon soon gave to France the civil code. By the same Fourcroy he proposed to the legislative body a law, passed 22 Ventôse, year XII (March 13, 1804), which established twelve law schools. These schools

* The law of 11 Floreal, year X, at once established a military school to replace those which had been destroyed. This school was first placed at Fontainebleau. The decret of Jan. 23, 1803, transferred it to St. Cyr, and the pupils of this *prytaneum* were themselves sent to la Flèche. A new decret of 13 Fructidor, year XIII (Aug. 31, 1806), maintained the school definitely at St. Cyr, where it still remains. From 1810 to 1814, Fontainebleau again became the seat of another military school for the formation of under officers. The establishment of la Flèche also remained a military college. A resolution of the consuls, Oct. 4, 1802, established the school of artillery and engineering at Metz.

† "Art. 24. The existing special schools are supported. Art. 25. There may be established. 1. ten law-schools; 2. three new medical schools; 3. four schools of natural history, natural philosophy, and chemistry; 4. two schools in the mechanical and chemical arts; 5. a mathematical school; 6. a special school of geography, history, and political economy; 7. besides the schools of art and design, existing at Paris, Dijon, and Toulouse, a fourth will be formed, with four professors; 8. the observatories actually in operation will each have a professor of astronomy; 9. there will be near the several lycées, teachers of the modern languages; 10. eight teachers of music and composition will be nominated." (Law of May 1, 1802, Chap. V.)

arranged nearly as at present were placed at Aix, Brussels, Caen, Coblenz, Dijon, Grenoble, Paris, Poitiers, Rennes, Strasbourg, Toulouse, and Turin. The law of institution subjected them to the authority of the minister of justice, and confided their administration to the director-general of public instruction, assisted by five general superintendents.

In signing the concordat accepted by the legislative body (July 17, 1801,) the First Consul had re-established the Catholic religion, and the official relations of the French government with the Papacy. A later law, adopted 23 Nivôse (March 14, 1804), established schools of theology, under the name of *metropolitan seminaries*. The chiefs and professors of these schools, the direction of which belonged to the archbishops and bishops, were to be nominated by the government.

One of the three grand divisions of the National Institute, as constituted by the legislation of 1795, was devoted to *moral and political science*. He who restored a State Religion, and considered the revolution as *finished*, feared to see rise against him, in this division of the highest establishment of public instruction, a kind of philosophical and revolutionary Sorbonne, conducted by what he called *ideologists*. Consequently a consular decree of the 23d Jan., 1803, modified this plan, and divided the Institute into four classes, viz: 1. physical and mathematical science; 2. French language and literature; 3. history and ancient literature; 4. fine arts. This deliberate mutilation combined with similar alterations in the inner regulation of the labors of this body, not only brought it nearer the traditions of the monarchy, but distorted the lofty ideal conceived by Talleyrand, Condorcet, and Daunou. The Institute, these philosophers thought, was to live a characteristic and entirely independent life. Its foundations were to rest on the broad basis of public opinion, and to represent strongly the ceaseless progress of mind in every direction. But thenceforth, whatever might be the special merits of the members, the institute itself became part of the official administration, and was composed only of official boards or commissions of art, science, and literature.

University of France.

(6.) The most remarkable act of the next period, the institution most deeply rooted, and strongly marked by the Napoleonic character, was without doubt the Imperial University. The state councillors, Fourcroy, Beugnot, and Béranger, presented in the Emperor's name a new project to the legislative body, preceded by a long exposition of its causes, which became a law May 10, 1806. This law was composed of three articles thus conceived: "I. There will be formed under the name of Imperial University a body, exclusively commissioned with teaching and public education throughout the empire. II. The members of this corporation can contract civil, special, and temporary obligations. III. The organization of this corps will be given in the form of a law to the legislative body in the session of 1810." After having obtained from the assembly a ready adoption of this laconic act, the emperor, dispensing with the fulfilment of the obligation contained in the last article, undertook to execute them alone, by imperial decree, bearing date March 17, 1808.

V. LIBERTY OF INSTRUCTION AND PRIVATE INSTITUTIONS.

(1.) Primary Schools.—(2.) Secondary Schools.—(3.) Superior Schools.—(4.) Public Lectures.

(1.) THE first article of the decree of March 17, 1808, declares that "public instruction, in the whole Empire, is confided exclusively to the university;" and article second, that "no school, no establishment for instruction, can be formed independent of the imperial university, and without the authority of its chief." These two articles constituted what the enemies of the University of France have called its *monopoly*. They were the open denial of liberty of instruction. This liberty, fifty years ago, nowhere existed in our country, neither for superior, secondary, nor even for primary instruction. Even the Brothers of the Christian Schools had the liberty to teach only as members of the university to which the emperor Napoleon had attached the order.

Under the Restoration, a certain number of religious communities devoted to popular education, were authorized to found schools, some throughout all France, others within certain limits. About the same time a few establishments of secondary instruction obtained the privilege, then enjoyed by some others, of not sending their pupils to the state colleges, and yet of giving certificates of study in rhetoric and philosophy, valid for admission to the examinations for the bachelor's degree. But these privileged establishments were few in number, and, moreover, privilege is not liberty.

The principle of liberty of instruction was laid down, for the first time in France since the founding of the university, in the charter of 1830, and applied for the first time in the law of June 28, 1833. Article three of this law declares expressly that "primary instruction is private or public." It is completed by article four, declaring that "every individual of eighteen years of age shall be able to follow the profession of primary instructor, without any other condition than presenting to the mayor of the commune in which he desires to establish a school, a diploma of ability and a certificate proving that he is worthy by his morality, to exercise the office."

Mere liberty of instruction does not lead to the establishment of new private schools, without some real or supposed advantages connected with them, especially if the public schools are both good and cheap. In 1837, there were 18,023 private schools, and 18,557 in 1840; but they were reduced to 17,118 in 1843; to 16,736 in 1850; and 16,349 in 1865. Thus the number of these schools has gradually diminished, while the number of public communal schools, which was only 34,756 in 1837, was in 1843 found to be 42,720, and had increased in 1865 to 53,350.

But it is worthy of remark, that the decrease in the number of private schools was confined exclusively to the secular schools. Out of 16,736 private schools existing in 1850, there were 12,888, viz: 4,563 schools for boys, and 8,325 for girls, which were directed by laymen; there were but 3,848, viz: 399 for boys, and 3,449 for girls, which had been founded by religious associations.

In 1866 the proportion was entirely changed. Out of 16,349 private schools we find 9,847 secular schools; a decrease compared with 1850, of 3,041. But we find 6,502 schools directed by religious communities, that is to say, 2,654 more than seventeen years ago. The secular schools for boys, numbering 2,864, have 137,721 pupils; and those for girls, numbering 6,983, have 285,909; total, 423,630.

The schools directed by religious communities are divided as follows: schools for boys, 646; for girls, 5,856. The boys' schools contain 91,973 pupils, of whom 56,488 pay no fee. The schools for girls have 443,775 pupils, of whom 156,738 are free. In the former the *personnel* of instruction includes no less than 2,314 masters and under-masters, and in the latter, 19,000 female teachers and under-teachers. Besides these schools belonging to the religious associations, their teachers direct 13,391 public communal schools, viz: 1,970 boys' schools, 8,322 girls' schools, and 1,099 schools common to the two sexes.

(2.) In the mean time the clergy and numerous catholic families demanded that the same liberty of instruction should be extended to secondary institutions as guaranteed by the charter of 1830. After long and stormy discussion in the legislature, and in the press, and various unsuccessful attempts by the government to reconcile the conflicting claims of the friends of the university on one side, and of unrestricted liberty on the other, came the revolution of 1848, with its constitutional enactment, *Instruction is free*. Before a declaration so clear and precise, there was at once an acquiescence on the part of the differing advocates of restricted liberty, in the provisions of the law of March 17, 1850. By the terms of that law every Frenchman aged twenty-one may exercise the function of primary instructor, throughout France, if he is furnished with a diploma of ability; and every Frenchman aged twenty-five may establish an institution for secondary instruction, if he holds a diploma of bachelor, or a certificate from the proper authority that he has for at least five years exercised the functions of inspector or instructor in a secondary school.

For primary instruction, in place of a diploma of ability may be substituted the evidence of three years' experience in the primary school, or of being a minister of religion, or the diploma of bachelor, or, finally, of the simple admission of the candidate into one of the special schools of the government, such as the Saint-Cyr, the polytechnic, or the forestry school. Letters of obedience take the place of diplomas for female teachers belonging to religious communities devoted to instruction and recognized by the state.

For secondary instruction, the applicant may present, in place of the diploma of bachelor, a certificate of having passed successfully an examination similar to that for the baccalaureate, before a special jury, and not before a faculty. For the rest, the legislature declares those individuals incapable of having a school who have been condemned for crime or for an offense against honesty and good morals. But the law of 1850 does not maintain the incapacities which the former regulations, and especially

article two of the ordinance of June 16, 1828, pronounced against the ecclesiastics engaged within the limits of a religious community.

Such are the immunities, new in France, which the law of March 15, 1850, sanctioned. To prevent their abuse, the legislature has decided that the public authority, through the organ of the rector, the prefect or the imperial attorney, might, in the interest of the health of pupils and of good morals, make opposition to the opening of every new school. The justice of this opposition is decided by the departmental council, with liberty of appeal to the higher council of public instruction. Before the same judges must appear all private teachers who are accused of negligence in the exercise of their duties, of misconduct, or immorality; they are, according to the circumstances, censured, suspended, or even receive an absolute prohibition, incapacitating them from holding any office of instruction. The spirit in which the law was to be administered is expressed in the Circular addressed by the minister of public instruction (M. de Parieu) to the new rectors :

"I will place in the first rank of your obligations, sincere respect for that liberty which is, so to speak, the principle of the new law. Conceived and adopted with the avowed intention of freeing private instruction from the tutelage of the state, this law continues no one of the obstacles that the old legislation had established. It consecrates at once the liberty of the father of the family, and that of the citizen, who can henceforward, without previous authority, devote himself to the education of youth. It admits no opposition on your part to the opening of private schools, except in the interest of the public morals, the health of the pupils, or for lack of ability, as determined by law. In applying a legislation so liberal, in a manner conformable to the spirit that dictated it, your administration will not be tolerant merely, it will show itself when necessary, benevolent and protective. Everywhere that you see youth educated in the principles of order, morality and virtue, you will know that there is an institution useful to the country, and whose prosperity should be dear to you."

The statistical results of making instruction free to parents and teachers—and to teachers, individual or associated, are as follows: on the first of January, 1865, there were 934 private establishments (147 less than in 1854) of secondary instruction, with 34,000 pupils, besides 264 clerical seminaries* with 20,000 pupils, an aggregate of 1,198 schools and 54,000 pupils. In the mean time the attendance in the state lyceums has increased from 19,265 in 1850, to 34,442 in 1865; and in the communal colleges, from 29,000 in 1850, to 32,000 in 1865. Liberty of instruction, properly guarded, while it has quieted opposition and satisfied the demands of families, has periled no interest, but helped the diffusion of knowledge and the elevation of public intelligence.

(3.) Superior instruction, differing from primary and secondary instruction, has continued entirely subordinate in its exercise, to the discretionary power of the administration. To-day, no more than in 1808, no one may teach law, medicine, archeology, belles-lettres, in France, if he has not

* Of the clerical seminaries, 18 belong to the Marists; 11 to the Jesuits; 1 to the Lazarists; 2 to the Basilians; 2 to the Picpuens; 1 to the Doctrinaires; 1 to the priests of the Perpetual Adoration; 1 to the priests of the Sacred Heart of Mary and Jesus; and 1 to the priests of Saint Joseph.

obtained for this purpose, from the government, represented by the minister of public instruction, an express authority, which is always revocable.

There has, however, always been in France, outside of the official instruction, a certain number of public lectures on different branches of science and literature. The most ancient, the most numerous, and without doubt the best organized, were the lectures given at Paris to the students in medicine, and which completed in the happiest manner the instruction of that faculty. Directed in general by masters still young, but skillful and full of ardor, these latter courses shared the great renown which the medical school of Paris has acquired throughout the entire world.

(4.) Under the auspices of the minister of public instruction (M. Du-ruy), and by the exertions of an association of professors, scholars, and men of letters, scientific and literary conferences (familiar lectures) were organized at the Sorbonne, at the close of the year 1863. Twice a week, for several months, there was gathered a compact audience of old and young, fathers and mothers, simple workmen and people of the highest rank, pressing into the venerable edifice consecrated from all time to the severe studies, to listen to an address, witty or learned, and always instructive.

Encouraged by the success of these courses at Paris, the minister, in a circular dated October 1, 1864, invited the members of the university faculties to prepare for the large centres of population throughout the Empire, the most noble and the most useful recreation, by giving, in imitation of the discourses at the Sorbonne, a few public instructions on subjects of science or literature, capable of being intelligently treated in a single hour; at the same time the coöperation of the learned societies, the magistracy, the administrative bodies, all those, in fact, who, in different positions, could unite usefully in this crusade of devotion and knowledge, against ignorance and dangerous leisure, was invoked.

At the commencement of the legislative session of 1865, the government announced in the *Exposé de la situation de l'Empire*, that 300 free courses of lectures were in progress; which number continued to increase during the following months. During the scholastic year 1865-1866, there were no less than 1,003 assemblies, of which 304 were at Paris, and 699 in the departments. Among these, 124 were given under the auspices of learned academies, 25 of industrial societies, 152 of municipalities, and one of a chamber of commerce. All the enlightened classes furnished their contingent to the *personnel* that bore the burden of this instruction, so novel in France, but so quickly and so universally popular. It counted in its ranks 355 professors, members of the university, 144 men of letters, 2 councilors of state, 12 members of the institute, magistrates, engineers, lawyers, druggists, architects, members of the clergy. The subjects treated present a happy variety. Literature furnished 394 subjects; the sciences and their application, 223; history, 103; political economy and jurisprudence, 87; the fine arts, 48; hygiene, 40; geography, 36; philosophy, 33; agriculture, 24; archeology, 15.

Prof. Arnold, in his report already cited, and in the same chapter, thus speaks of the

TEACHING STAFF OF THE FRENCH SECONDARY SCHOOLS.

Their administration, properly so-called, is in the hands of a provisor, a censor, and a steward, who themselves take no part in the teaching, but who admit the scholars, correspond with the parents, keep the accounts, manage all the household economy, superintend the discharge of his duties by each member of the establishment, and maintain the discipline. There are also two or more chaplains, and the great *lycées* of Paris, which receive a very large number of boarders, have also a certain number of officers, with the title of general superintendents, attached to the governing body.

To all French *lycées* is attached a council of administration, revising the conduct of their business affairs, and each academy has a commission of health, charged with the sanitary interests of the establishments of public instruction in the academic district. A central commission of health exists for the special benefit of the Paris *lycées*. But, in the first instance, the governing and administering body in a French *lycée* consists of these three functionaries: the *proviseur*, who is the chief of all, the *censeur*, and the *économ*e or steward. Then come the teachers, professors of different degrees of rank. Then the *maîtres répétiteurs*, on whom falls the task of that constant supervision of the boys out of class hours, for which French schools have with us in England such a notoriety. The professors give their lessons, and are then free to depart. They have nothing whatever to do with the boys out of school hours. The *maîtres répétiteurs*, or *maîtres d'étude*, as they are more generally called,—the ushers, as we should call them,—are with the boys when they are preparing their lessons, and at their meals, and at their recreation, and in their dormitories. The highest class of these ushers assist the boys in the preparation of their lessons; a lower and far larger class is inadequate for this task of tutor, and is simply charged with the duty of superintending and reporting.

All these functionaries, from the *proviseur* to the *maître d'étude*, are nominated by the minister. The *proviseur* and the rector, indeed, present for the minister's acceptance, candidates for the post of *maître d'étude*, and of teacher of the lower classes in the communal colleges; and the rector has to keep a record of service and seniority among the professors in the *lycées* of his academy, which record, no doubt, guides the minister in making his nomination. Still, the mass of patronage vested in the minister must appear to our eyes extraordinary. But it is right to say that the law in France has imposed conditions on the minister's exercise of his patronage, which inevitably keep it within strict bounds. As the rector must be a doctor in some faculty, and the academy-inspector must be a licentiate, (intermediate between a bachelor and a doctor, and answering to our master,) so each functionary of the *lycée*, from the *proviseur* to the *maître d'étude*, must present some guarantee of intellectual capacity.

The *proviseur* must be a licentiate. The *maître d'étude* must be a bachelor of letters or sciences. But it is for the professor's office that the most stringent security is required. To be a full professor, (*professeur titulaire*), the title of *agrégé de lycée* is necessary. We have nothing corresponding to this in England.

It is not a university grade, but a special certificate or diploma. The examination for it requires the possession of a university grade, and covers the whole ground of the intended professor's teaching. The title exists for superior instruction also; there are *agrégés de faculté*, as well as *agrégés de lycée*; to be full professor in a faculty, indeed, guarantees beyond the *agrégation*, (for example, the rank of doctor or of member of the institute) are demanded; but even to be acting professor (*professeur suppléant*) in a faculty, the title of *agrégé* in that faculty must be obtained; and to obtain it, the candidate has to pass a strict examination in the matters which he will have to teach. The *agrégés de lycée* are of seven orders, corresponding to the kinds of instruction given in the *lycées*. There are *agrégés* for the classes of mathematics, of natural sciences, of philosophy, of higher classics, of lower classics, of history and geography, of modern languages. To be an *agrégé* for any one of them, the candidate must be twenty-five years old, and must have had five years' practice of teaching in a public or private school. A certain maturity and experience are thus insured at the outset. Then the intending *agrégé*, for the classes of mathematics, must possess the degree of

licentiate of mathematics, and that of licentiate either of physics or of natural sciences; for the classes of natural sciences, the same; for the classes of philosophy, the degree of licentiate of letters, (master of arts,) and that of bachelor of sciences; for the higher classical division, the degree of licentiate of letters; for the lower, the same; for the classes of geography and history, the same; for those of modern languages, a certificate of fitness (obtained only after examination) to teach them.

These preliminary securities being taken, the candidates undergo a written examination. If they fail in the written examination they are rejected. If they pass in it, they proceed to a *viva voce* one. In every case the examination is based on the programme of the classes for which the candidate wishes to become *agrégé*, and the oral examination includes one or more lessons delivered as if to a class. The programmes of the different classes are, as I have already said, fixed by authority. I will just mention in passing what the candidate for the *classes supérieures de lettres* (higher classical division) has to do. His paper-work consists of a piece of Latin verse, a piece of translation from French into Greek and Latin, a piece of translation from Greek into French, a Latin essay, and a French essay, one on a philosophical, the other on a literary subject, and a piece of translation into French from a modern language, English or German. In his *viva voce*, he has to correct aloud two exercises of boys in the higher classical division of a *lycée*, to translate, with full comments and explanations, a passage from a Latin and German author read in the *lycées*, and to comment on a passage from one of the French classics read there. He has also to translate a passage from an English or German book. Finally he has to give, as if to a class, a lesson on either grammar, classical literature, philosophy, history, or modern languages.

Having proved his fitness by his examination, the candidate is then nominated professor in a class of the order for which he has obtained the title of *agrégé*. But he cannot be employed in a class of another order without obtaining by examination the title of *agrégé* for that class; thus an *agrégé* for the higher classical division can not be employed in a mathematical class, or a class for natural sciences, nor can an *agrégé* for the lower classical division be employed in the higher. The spectacle often seen in English schools of a classical master teaching, without any real acquaintance with his subject, mathematics, or modern languages, or history, is not to be seen in France.

The pupils of the superior normal school can hold the place of professor without being *agrégés*; but they can not hold the more important and better paid post of *professeur titulaire* without this test; they can only be divisional, acting, or assistant professors (*professeurs divisionnaires, suppléants, or adjoints*). And the examinations of the normal school are in themselves a test, and a very strict one, of the fitness of its pupils for their business.

The salary of a professor is composed of two parts, the fixed part and the *eventual* part, as they are called. The fixed salary of a full professor is at Paris 4,500, 4,000, and 3,500 francs, according to the division in which the professor is placed; in the departments, 2,400, 2,200, and 2,000 francs. The fixed salary of a divisional professor is in Paris 1,800 or 1,200 francs; in the departments it is 1,200 francs. Since 1862 the *traitement eventual* (which formerly depended on the income from fees and board) has been fixed at a uniform sum of 3,000 francs for professors in Paris; and for those in the departments at less than one-half this sum. A professor also receives certain fees for examinations and conferences, and often gives private lectures.

The divisional professors are poorly paid, especially those in the departments. But the position of the great body of the *maîtres d'étude*, or *maîtres répétiteurs*, is more discouraging. There are three classes of them—*aspirants*, second class ushers, first class ushers. An *aspirant* must be eighteen years old, and must have the degree of bachelor of arts or sciences; a second class usher must have served for a year as *aspirant*; a first class one must have served a year in the second class, and that, if he has the degree of master of arts, or sciences, is sufficient; if he has not this degree, he must have served in the second class five years, three of them in the same *lycée*. The best of them may hold the post of master in the lowest division, or of an absent professor, or of private tutor. An usher acting as master receives in Paris about 60 *l.* a year; in the departments, from 40 *l.* to 50 *l.* The two lowest grades receive less.

TABLE X.
STATISTICS OF PRIMARY INSTRUCTION IN 1846 AND 1886.

SCHOOLS, SCHOLARS, EXPENSES, &c.	1846.	1866.
Number of Communes.....	37,548	37,548
Communes without any school whatever.....	3,213	650
Number of Public Boys' Schools.....	13,558	21,340
Number of Public Mixed (Boys' and Girls') Schools.....	19,458	17,518
Number of Private Boys' Schools.....	6,120	3,599
Number of Public Girls' Schools.....	7,426	15,099
Number of Private Girls' Schools.....	11,993	13,115
Number of Schools.... { under lay superintendence.....	49,751	52,366
clerical "	8,805	18,305
<i>Total of Public and Private Schools.....</i>	<i>58,556</i>	<i>70,671</i>
Number of Public Infant Asylums.....	771	2,589
Number of Private Infant Asylums.....	1,090	1,080
<i>Total of Public and Private Asylums.....</i>	<i>1,861</i>	<i>3,669</i>
<i>Total of Schools and Asylums.....</i>	<i>60,417</i>	<i>74,340</i>
Number of adult courses for males. { under lay superintendence.....	6,496	27,162
" clerical "	240	1,424
Number of adult courses for females. { under lay superintendence.....	83	2,200
" clerical "	58	1,567
<i>Total of Adult Courses.....</i>	<i>6,877</i>	<i>32,353</i>
<i>Total of Schools, Asylums and Adult Courses.....</i>	<i>67,294</i>	<i>106,723</i>
Number of Communes possessing School-houses.....	90,078	96,301
Attendance at the Public Boys' Schools and Mixed Schools.....	2,196,653	2,461,499
Attendance at the Private Boys' Schools.....	949,426	926,927
Attendance at the Communal Girls' Schools.....	562,252	1,076,917
Attendance at the Private Girls' Schools.....	498,592	742,031
<i>Total attendance at School.....</i>	<i>3,436,923</i>	<i>4,515,967</i>
Attendance at Schools.... { under lay superintendence.....	2,624,013	2,890,670
" clerical "	812,910	1,695,297
Number of gratuitous Scholars in the Public and Private Schools.....	933,858	1,707,251
Attendance at the Infant Asylums.....	194,287	432,141
<i>Total attendance at the Schools and Asylums.....</i>	<i>3,561,910</i>	<i>4,948,106</i>
Attendance of the adult courses, { Males.....	109,745	747,002
Females.....	5,416	82,553
<i>Total attendance at the Adult Courses.....</i>	<i>115,164</i>	<i>829,555</i>
<i>Total attendance at the Schools, Asylums and adult courses....</i>	<i>3,676,374</i>	<i>5,777,663</i>
Number of Conscripts.....	307,091	312,557
Number of Conscripts who could neither read nor write.....	109,038	70,528
Per centage of illiterate conscripts.....	36.55	23.00
Ordinary expenses of Primary Instruction (in francs).....	30,203,117	60,587,549

Total amount expended on Primary Schools (by State, communes, and families) in 1866 was 73,399,582 fr., *exclusive* of amount (not known) expended on 16,349 private schools, attended by 956,928 pupils.

The following are among the principal items of expenditure for 1866, viz., for salaries of teachers in schools and asylums, 46,137,709 *fr.*; for inspection of schools and asylums, 1,040,488 *fr.*; for Normal school instruction, 3,700,106 *fr.*; for building school-houses, furniture, 14,561,128 *fr.*

EXPENSES OF PUBLIC INSTRUCTION IN FRANCE, 1868.

GENERAL STATEMENT.

For what purpose.	Amount in francs.
ORDINARY BUDGET.	
<i>Central administration of public instruction.</i>	
Personel.....	570,950 00
Material.....	140,000 00
<i>General service of public instruction.</i>	
Inspectors-general of public instruction.....	247,000 00
General service of public instruction.....	238,000 00
Academic administration.....	1,210,000 00
<i>Normal Superior School and superior instruction; scientific and literary establishments</i>	
Normal Superior School.....	293,610 00
Faculties.....	3,828,821 00
Library of the University.....	26,000 00
Imperial Institute of France.....	615,200 00
Imperial Academy of Medicine.....	43,700 00
College of France.....	277,000 00
Museum of Natural History.....	592,380 00
Astronomical establishments.....	267,260 00
School of Modern Oriental Languages-library and museum at Algiers.....	82,800 00
School of Record.....	37,800 00
School of Greek language and archæology at Athens.....	64,500 00
Imperial library, ordinary expenses.....	422,500 00
catalogues.....	50,000 00
Public libraries.....	197,500 00
Learned societies.....	54,000 00
Subsidy paid to the "Journal des Savants".....	15,000 00
Scientific and literary subscriptions.....	140,000 00
Pecuniary aid granted to men of science and literature.....	200,000 00
Pecuniary aid granted to teachers and subscriptions for classical works.....	60,000 00
Scientific expeditions.....	42,000 00
Collecting and publishing documents relating to the history of France.....	120,000 00
<i>Secondary instruction.</i>	
General expenses of secondary instruction.....	100,000 00
Imperial lyceums and commercial college.....	2,570,970 00
Imperial free places.....	868,000 00
<i>Primary instruction.</i>	
Inspection of primary schools.....	989,400 00
General expenses of the State.....	5,941,700 00
Expenses for unfinished experiments.....	42,179 99
Total.....	20,298,270 99
Expenses for finished experiments.....	390,766 94
Total of the ordinary budget.....	20,689,037 93
BUDGET OF SPECIAL RESOURCES	
<i>Primary instruction.</i>	
Expenses charged to the departmental fund.....	7,149,408 48
Expenses charged to the special fund of primary normal schools.....	1,006,187 95
Total.....	8,155,596 43

Expenses of Public Instruction in France—Continued.

For what purpose.	Amount in francs.
EXTRAORDINARY BUDGET.	
Preparation and publication of the map of Gaul	25,000 00
Observatory, (construction of instruments)	10,000 00
Scientific expedition to Mexico	100,000 00
Subsidies granted for the erection of school-houses	1,180,000 00
Work done at the lyceum of Grenoble	90,000 00
Normal school of Clammy	75,000 00
Adult courses	70,000 00
Expenses of revising the codes	25,000 00
Indemnity paid to M. Paul Dupont, editor of the "Journal des Prolétaires"	10,000 00
Total	1,675,000 00

SPECIFIC STATEMENT.

CENTRAL ADMINISTRATION.	
<i>Personnel.</i>	
Minister's salary	100,000 00
One secretary general	15,750 00
One chief of cabinet	6,000 00
One director of the personnel	6,606 60
Six chiefs of division, (10,000 to 12,000)	68,166 61
Twelve heads of bureaux, (5,000 to 8,000)	72,499 33
Seventeen assistant heads of bureaux, (3,000 to 5,500)	65,838 71
Seventy-two clerks of different grades, (1,500 to 3,500)	180,715 98
Thirty-five servants, &c., (300 to 1,700)	40,100 04
Paid for extra work	15,220 00
Total	570,917 24

ALLOWANCES AND EXPENSES.

Material.	Allowed in the ministerial budget.	Actual expenses.
Heating	20,000 00	21,450 50
Lighting	10,000 00	9,105 74
Office furniture and stationery	10,000 00	12,596 30
Printing	20,000 00	12,359 34
Repairs	45,000 00	42,175 44
Sundries	30,000 00	38,015 49
Imperial council of public instruction	5,000 00	4,366 50
Total	140,000 00	139,999 31
Total central administration		710,946 55



Expenses of Public Instruction in France—Continued.

For what purpose.	Amount in francs.
ACADEMIC ADMINISTRATION.	
<i>Rectors.</i>	
One vice-rector of the Paris Academy.....	15,000 00
Sixteen rectors, (15,000 to 10,000).....	180,663 64
Additional salaries.....	100,985 93
<i>Inspectors.</i>	
Eight inspectors of the Academy of Paris, (7,000 to 6,000).....	54,985 68
Ninety inspectors, (4,500 to 5,500).....	434,372 04
<i>Secretaries.</i>	
One secretary of the Academy of Paris.....	6,000 00
Sixteen secretaries, (2,000 to 3,000).....	42,345 82
<i>Clerks.</i>	
Thirty-three clerks of the Academy, (1,400 to 2,700).....	60,764 82
Eighty-eight clerks in the academic inspection, (1,400 to 1,800).....	142,324 17
Material.....	127,700 11
Academy of Algiers.....	35,615 89
Total.....	1,208,999 09
SUPERIOR NORMAL SCHOOL.	
One inspector general.....	7,000 00
One director of the scientific studies.....	2,000 00
One director of the literary studies.....	2,000 00
Four superintendents, (1,500 to 1,800).....	5,612 53
One chaplain.....	3,258 30
One steward.....	4,100 00
One clerk.....	1,800 00
Six teachers, (at 6,000).....	36,000 00
Eighteen teachers, (1,000 to 4,000).....	53,701 69
One drawing-master, one librarian, and eight special teachers.....	14,410 81
Payments made to two physicians.....	1,800 00
Salary of eighteen agents, (300 to 900).....	10,420 00
Board for 108 pupils.....	104,770 00
Board of the superintendents, teachers, &c.....	12,515 60
Collections, excursions, library, &c.....	22,730 91
Total.....	293,610 00
MUSEUM OF NATURAL HISTORY.	
<i>Personnel.</i>	
Sixteen professors, (at 7,500).....	120,000 00
One librarian.....	4,500 00
One assistant librarian.....	3,000 00
One accountant, (4,500) and assistant, (3,000).....	7,500 00
Two assistant naturalists, (2,000 and 4,000).....	53,000 04
Two keepers of the galleries, (at 3,500).....	7,000 18
Two drawing-masters, (at 2,500).....	4,999 92
One head gardener, (at 3,500).....	3,499 92
Twenty "preparateurs," (1,500 to 2,500).....	33,089 86
Four clerks, (1,500 to 2,000).....	7,100 04
One superintendent of workshops, (at 2,500).....	2,499 96
Three chiefs of workshops, (1,400 to 2,000).....	5,400 00
Eleven gardeners, (1,200 to 2,500).....	19,900 10
Eight messengers, (1,000 to 1,300).....	6,808 51
Nine scrubbers, (1,000 to 1,300).....	9,600 12
Eight keepers of the menagerie, (1,000 to 1,300).....	8,799 84
Three carriers, (1,100 to 1,300).....	3,724 78
Total.....	298,433 17

Expenses of Public Instruction in France—Continued.

For what purpose.	Amount in francs.
MUSEUM OF NATURAL HISTORY—Continued.	
<i>Paid to travelers.</i>	
One traveler in China.....	4,000 00
One correspondent in Guyene.....	1,000 00
One correspondent in Brazil.....	500 00
One correspondent in Cochln China.....	900 00
One correspondent in Mauritius.....	400 00
Geological excursion in the Vosges Mountains.....	1,050 00
Total.....	7,850 00
<i>Material.</i>	
Galleries, laboratories, libraries, &c.....	104,321 58
Gardens and hot-houses.....	59,080 45
Menagerie.....	61,663 02
Workshops.....	27,876 66
Heating and lighting.....	32,154 95
Total.....	285,096 66
Aggregate.....	592,379 83
COLLEGE OF FRANCE.	
Twenty-nine professors, (at 7,500).....	227,166 58
Five "preparateurs," (at 1,500).....	7,500 00
Two beadles.....	2,199 84
Two doorkeepers, (300 and 1,000).....	1,299 96
One day laborer.....	720 00
Extra workmen employed.....	7,240 00
Expenses of the various courses of instruction.....	19,434 57
Heating, lighting, repairs, stationery, books, and sundries.....	11,439 05
Total.....	277,000 00
ASTRONOMICAL ESTABLISHMENTS.	
<i>Bureau of longitudes.</i>	
Nine members, (at 5,000).....	44,999 28
Four members, (at 3,000).....	12,000 00
One artist.....	3,999 96
One assistant artist.....	1,999 92
Calculators.....	12,999 72
Expenses of calculations.....	14,150 00
Heating, lighting, instruments, &c.....	6,851 12
<i>Paris Observatory.</i>	
Director.....	
Astronomers, physicians, assistant astronomers, assistants and calculators, servants, &c.....	104,049 58
Material.....	54,410 91
Observatory at Marseilles.....	1,799 15
Meteorological observations at Luxembourg.....	10,000 00
Total.....	267,259 64
IMPERIAL LIBRARY.	
<i>Administration.</i>	
One general administrator.....	15,000 00
One secretary, (at 3,400).....	3,400 96
One repairer of books.....	2,783 30
Two clerks, (2,600 and 3,600).....	6,033 24
Total.....	27,216 50

Expenses of Public Instruction in France—Continued.

For what purpose.	Amount in francs.
IMPERIAL LIBRARY—Continued.	
<i>First department: Books, maps, and geographical collection.</i>	
One sub-director, (at 10,000)	9,999 99
Three sub-directors, (at 6,500)	19,450 00
Three assistant directors, (at 5,000)	11,916 62
Two librarians, (4,000 and 4,200)	8,199 96
Seventeen clerks, (1,900 to 3,500)	43,452 02
Five assistants, (at 1,600)	8,865 94
Total	101,434 53
<i>Second department: Manuscripts.</i>	
One sub director, (at 10,000)	9,999 99
One assistant sub-director, (at 8,000)	7,999 99
Three assistants, (at 5,000)	14,999 76
Three librarians, (3,600 to 4,900)	9,000 00
Three clerks, (1,900 to 2,500)	7,933 38
Total	49,932 87
<i>Third department: Medals.</i>	
One sub-director, (at 10,000)	9,999 99
One assistant sub-director, (at 7,000)	6,999 99
One librarian, (at 4,000)	333 33
Three clerks, (1,900 to 3,000)	6,903 30
Total	24,236 61
<i>Fourth department: Prints.</i>	
One sub-director, (at 10,000)	9,999 99
One assistant sub-director, (at 7,000)	6,999 99
One librarian, (at 3,600)	3,466 62
Three clerks, (1,800 to 3,000)	7,066 60
One assistant, (at 1,600)	1,566 64
Total	29,069 84
Workmen in the bookbinding and sizing shops	18,816 06
Servants	31,439 98
Extra work	6,073 64
<i>Material.</i>	
Books bought	39,195 15
Maps bought	2,063 50
Manuscripts	10,873 15
Medals	12,838 00
Prints	7,810 35
Binding, repairing, &c.	94,925 50
Heating and lighting	13,906 00
Repairs of building and furniture	6,816 50
Sundries	8,371 82
Total	126,749 97
<i>Archæological course.</i>	
One professor, (at 7,500)	7,499 97
Material	7,499 97
Total	422,500 00

PUBLIC INSTRUCTION IN SCOTLAND.

AREA—POPULATION—EDUCATION.

SCOTLAND, originally an independent kingdom, but since the union of the crowns of Scotland and England on the accession of James VI of the former, to the throne of the latter as James I, in 1602, and the act of Union in 1707, an integral portion of the kingdom of Great Britain, occupies the division of the Island north of the Tweed, Solway Frith, and the Cheviot Hills. It has an area of about 80,000 square miles, with a length of 217 miles, and a breadth ranging from 43 miles to 125, not including numerous islands which line its coast, and constitute no small portion of the whole area. Out of 19,639,377 acres, only 4,438,187 are under cultivation. The population in 1861 was 3,062,294 distributed over three great divisions, differing in the natural configuration of the country, and the industrial condition of the people, viz. :—*First*, 1,487,276 in the Lowland Parishes : *Second* 80,000 in the Hebrides and Highland Parishes ; and 1,012,270 in 79 Burghs (Parliamentary and Royal) and 289,057 in 78 Towns having each 2,000 inhabitants and upwards. In each of these subdivisions the organization of public schools differ, and will require separate treatment.

PUBLIC INSTRUCTION.

Public instruction in Scotland is secured through three great departments, which may be called Elementary, Secondary and Superior. Although not legally so designated, yet the institutions in each have a legal basis, though not very closely defined and limited, and the whole is without any efficient system of local or state administration, inspection, or control.

1. **ELEMENTARY INSTRUCTION** is provided in institutions of various kinds, the core of which is the national Parochial system, which in its germ, existed as early as the Christian Church in Scotland, and which took its present shape in the acts of the Privy Council in 1615, and of the Scotch Parliament of 1633, and of the Church of Scotland in 1689. To these departments, although not exclusively, belong :

(1.) Parochial Schools which exist by operation of law in every parish, which together (917) cover the whole of Scotland outside of the boundaries of the burghs.

(2.) Side Schools, authorized by act of 1803, in parishes so situated.

PUBLIC INSTRUCTION IN SCOTLAND.

or so extensive that a single school can not adequately provide the elementary instruction for all the youth within their bounds.

(3.) Sessional Schools in the large towns, and burghs (each of which comprise one parish), which are managed by the minister and kirk Session, but may be regarded as belonging to the parochial system, in their class of pupils and studies.

(4.) Parliamentary schools, established since 1835, by an act of Parliament, by which the salaries of certain districts in the Highlands and Islands are paid out of a public appropriation.

To the elementary department belong a large number of non-parochial schools, such as (1.) the *General Assembly Schools*, of which there are 519 with 88,251 scholars; (2.) the *Christian Knowledge Society Schools*, of which there are 202, with 10,054 scholars; (3.) *Free Church Schools*, established under the Free Church Education Scheme in 1843, of which there are 617, with 48,860; (4.) *Episcopal Church Schools* of which there are 74, with 6,202 scholars; (5.) *Roman Catholic Schools*, of which there are 61, with 5,736 scholars; (6.) *Subscription Schools*; (7.) *Proprietary Schools*; (8.) *Private Adventure Schools*; (9.) *Endowment Schools*, including the Hospitals which have funds to the amount of £100,000.

II. SECONDARY INSTRUCTION embraces :

(1.) Burgh Schools, or Grammar Schools, established by the Council or municipal authorities of Burghs created by Royal charter.

(2.) Academies, or Institutions, both in and out of Burghs, founded by subscription, and managed by directors selected from the subscribers.

(3.) Parochial Schools with advanced classes. To this department belong a large number of Private Schools, some of which are exclusively *boarding* or *day* schools, or a mixture of both, but all of them having elementary classes; also the Hospitals or endowed boarding schools for special classes.

III. SUPERIOR INSTRUCTION is given in four Universities, which have close connection with the schools and classes of Secondary Instruction. To the above department may be added :

IV. SPECIAL AND SUPPLEMENTARY SCHOOLS AND AGENCIES.

For thirty years, the friends of a truly national system of public schools—comprehensive enough to embrace citizens of all creeds and of all localities, no matter how remote, or how scattered the inhabitants may be, and good enough to realize the wishes of all classes of society for the education of their children—without ignoring the many excellent features of the old Parochial and Grammar Schools, which have given to Scotland in spite of many natural disadvantages, a high place among the prosperous nations of modern Europe—have labored strenuously for a reorganization. Out of these efforts has issued an Educational Commission, appointed in 1866, composed of twenty eminent and competent citizens, with the Duke of Argyll as chairman, from whose successive Reports in six volumes, we draw in literal extracts (slightly modified in a few instances) the following account of the systems, and schools of every kind now in operation in Scotland.

The self-government of the English schools, which is their most distinguishing feature, and which is greatly fostered by the management of their different sports, produces an excellent moral discipline upon many boys who learn little or nothing else at these schools. Each public school is a little world, with its own rules and ordinances and traditions, and in the government of it the boys play their parts just as they do in the greater world. By cultivating the different qualities that come to the surface in the playground, Public-school boys create an individual manliness, self-reliance, and a general healthy tone and *esprit de corps* throughout the whole school that is of immense importance in after life.

INTERNAL ORGANIZATION.

The Burgh and Middle-class schools of Scotland are arranged on three principles, viz.:—(1.) With the head master, elected with absolute authority; (2.) With head master having limited authority; (3.) With two or more masters, having co-ordinate authority.

(1.) There are a few schools in the country which are placed under a master with powers somewhat similar to those enjoyed by the head master of the English Public schools. In these schools the head master is supreme in all matters affecting the internal arrangements of the school. He regulates the work, arranges the classes and the time-table, appoints and dismisses the teachers, and is very little, if at all, trammelled by his directors or managing body. He is superior in position and in point of emolument to the other masters, and, like them, liable to dismissal at short notice.

(2.) A second class of schools contains those which are under a rector who is nominally supreme over the internal affairs of the school, but is often, and indeed generally, nothing but a medium of communication between the other teachers and the managing body. He has not the appointment, or even the nomination, of the under masters, neither does he regulate the work, nor even enforce the discipline of the school without consultation with his board of management. In these schools he may, or he may not, be in the receipt of a higher income from the school than the other teachers, and he may, or may not, exercise a limited supervision over them.

(3.) The third class of schools is that in which there are certain departments just as there are certain classes in the universities. Each master is supreme over his own department—"a pope in his class-room," as it was put by one of the professors,—and is responsible to no head master, or, indeed, to no one directly, and to the public only indirectly. So long as his department is well filled, it is a matter of little moment to him how the rest of the school goes on; he has no interest out of his own department. In these three classes of schools then, the head master's power is absolute, or it is limited, or it does not exist, but all teachers have co-ordinate power.

The arguments in favor of the third form of school organization, which prevail generally in Scotland are mainly four.

1. In schools where the teachers are all independent of each other, you are more likely, it is said, to get efficient men. First-rate men will not submit themselves to authority, but must be allowed to go their own way, and be under no supervision.

2. When a man has to work for himself and his own fees, and not for the good of the school, he will be more zealous and vigorous in his own department; and wholesome rivalry between the different teachers will have a good effect upon the discipline of the school.

3. It is better that a school should not be dependent on one man. In schools where the rector is absolute, every thing depends on him; and if he is insufficient the school suffers. In schools where all teachers are equal, one may be bad, and the rest good, and the school does not suffer.

4. Where you have teachers with co-ordinate power, you have free choice as to subjects of instruction; all subjects are on an equality, and there is no subordination of all to one, such as is found in most of the great English schools, and some of the Scottish schools.

The first argument is more plausible than real. Good men will submit to legitimate authority, if it be judiciously exercised, and if they are adequately remunerated. There are quite as distinguished men in the English Public schools as in the Scottish; but in the latter the remuneration is on a very different footing from what it is in the former. It is not a question of submission to authority, it is a question of emolument.

2. It may be quite possible that some men will exert themselves more, and teach more zealously, when their actual living depends upon the result of their work. But this tells another way. Zeal roused by such a motive very soon degenerates, and not unfrequently results in popularity hunting. We saw several indications of this. Teachers in more than one school of this class were obviously afraid of offending their scholars, lest they would leave them and go elsewhere. If the classes are optional, scholars are very apt to attend or not attend, in accordance with the pleasantness or unpleasantness of the class. If the teacher is a strict disciplinarian, they find the class unpleasant; if he is easy, they like him and remain. When teachers and pupils are on this relation with each other there is an end to efficient teaching.

3. The third argument in favor of the co-ordinate system may be answered thus:—It is quite true that in schools with a supreme head master every thing depends on him, and if he is a failure the school suffers; whereas, when the teachers are co-ordinate, two may be good and two bad, and the school may not suffer. But in the first case the evil is detected at once, and the head master, dismissible, as we have said before, at short notice, is changed. In the second case, there is no one to discover the evil, and it may go on for years before it is discovered, to the detriment of the school and the serious loss to the pupils who passed through the inferior teacher's hands. And when it is discovered, under the present tenure in Burgh schools at least, the inefficient teachers can not be dismissed, but may remain for life.

4. The argument founded on the equality of all subjects of instruction, is in reality an argument that affects the curriculum of a school, and not the relation of masters to each other. The position of different studies in a school is determined by a variety of causes. A subject is valued or not according to its place in the school course; according to the time assigned to it; to its value in examinations; to the share given to it in deciding prizes; and by the fact that inattention to it is or is not visited by punishment. All these causes go to determine the value of the different studies. The fact that the head master teaches one branch in particular has comparatively little to do with it. But it is by no means an established truth that equality of all subjects of instruction is a good thing for any school. The monopoly of one subject, coupled with the neglect of all others, is one thing; but the preponderance of one subject with fair play to all others, is a different thing. What is really wanted is a balanced curriculum, with or without optional classes at a higher rate, giving fair play to all branches, and not too much or too little to any. This argument therefore is met by a denial of the fact.

The true theory of school management in all schools of any importance is, we believe, a head master appointed by the managers or directors, but untrammelled by them. Freedom from interference is an important element in this theory. Nothing is so dispiriting to a man whose heart is in his work, as the petty annoyances, ignorant obstructions, and little interferences of those who may be in a position of authority over him; but who, having no interest in the work themselves, take a sort of jealous pleasure in asserting their authority, and in finding fault with their subordinates who do their duty. A managing body of this stamp would seriously damage the best school. A head master should be protected from all interference of this kind. He should be subject to dismissal on short notice by them, so that the school may not be burdened with an incompetent head; but, in other respects, he should be independent of his managers. He should be supreme over all the teachers, even to their appointment and dismissal, and they might assist him as a school council with a consultative, but not a legislative voice. He should be paid at a much higher rate than the other teachers, and should, both by position and character, be a man to whom the other teachers can look up and respect. Lastly, he should have entire control over the internal economy of the school, and be held responsible for the success of it.

This view is corroborated by observation and by experience. Professor Shairp, who before he became connected with the University of St. Andrews, was ten years in one of the best schools of England, writes in reference to the organization of Madras College:—

In order to carry out this system it would be absolutely necessary that a head master with very full powers should be appointed to preside over the whole institution. He ought to be a man not only of strong natural ability and great energy, but of large and varied attainments, knowledge of men, and power of management.

While the more advanced boys in classics should be specially taught by him, it ought to be his duty to superintend and examine every class throughout the school. In order to secure such a man, a much larger salary would have to be offered than Scotchmen have ever thought of giving to their head masters. The master to fill this post would of course be chosen by the trustees. But when chosen, and found adequate to the post, he ought to be left as much as possible to carry out the system of the school in his own way, and according to his own judgment. From what I have known of the best schools in England, I am convinced that their success is generally in exact proportion to the freedom which the trustees allow to the head master. At Rugby, which is generally reckoned the most efficient school in England, the trustees, taught by experience, have long confided their attention entirely to the election of the head master, and to the auditing the accounts which he annually lays before them. It will be long, I fear, before our countrymen will acquiesce in this policy of non-interference; but I am deeply convinced that just in proportion as they approach to it will their schools rise in real efficiency.

After they have learned to have confidence in their head master, the more they are guided in their selection of under masters by his advice the better. Best of all, perhaps, to leave the choice of assistant masters entirely to him.

As to the Madras, it is clear, from the nature of things, that it must suffer from the present divided rule. Each master will naturally try to promote his own branch, without considering the others, the more so in proportion to his zeal for his own subject. In so complicated a system, one wide and impartial survey of the superintending eye, to arrange and subordinate the several departments, with a view to one total end is especially needful.

Besides the intellectual organization, an incalculable moral advantage to a school arises from the supremacy of one controlling mind. If the head master, besides being an able scholar, is also a man of high character, his influence reaches every boy within the school, and does more to educate him than any thing else can do.

These remarks I offer without the least personal allusion, but entirely from a comparison of the Madras system with the most perfectly modeled schools which I have known.

In like manner Professor Sellar, of the University of Edinburgh, in answer to the question as to the relation of the masters to each other, says as follows:—

There should, I think, be a staff of masters acting under one head master or rector. For the success of a school, it is of the greatest importance that all the masters should feel that they are engaged in a common work, and that all should take a pride in the general success of the school. This common action and common interest in the school can be best secured by the masters working under one head. Where all are independent of, and on an equality with, each other, each is only interested in advancing his own subject, the success of which may appear to him to be best promoted by the depreciation of every other subject. Jealousies among the masters are sure to arise, when all are contending for popularity against one another; and, further, the education acquired by attending a number of classes standing in no relation to one another is much inferior to that of a well ordered school, where all the subjects are taught in subordination to one common end.

Professor Blackie, of the same university, writes:—

I would give more power to the rector than is customary in some Scottish Burgh schools; and I would restrict the power of the managing body as much as possible to matters of occasional legislation. Their habitual interference is pernicious.

On the other hand, Dr. Donaldson, rector of the Edinburgh High School, appears to be in favor of the more limited exercise of the head master's authority. He would keep the management of the Burgh schools in the

hands of the Town-Councils; he would have all the teachers elected by these bodies; he would encourage the Town-Councils or their committees to regulate all matters concerning the school; "and it should be the rector's right and business to see that all regulations of the committee of management are honestly carried out. Dr. Donaldson's views are worthy of all respect, and can not fail to carry authority from his long experience as a teacher in Town-Council managed schools.

CLASSES.

The classes in the Secondary Schools are arranged on three different principles.

1. In a majority of the schools there is no settled curriculum or course. Each school is a congeries of classes under different masters, without any definite aim to which all are striving, and without any harmony of action among the teachers. Departments even, in many instances, are not kept distinct, but the subjects which, under any natural allocation, should be taught in one department, are taught in another. Book-keeping for instance, is taught, in some schools at a high fee, by the mathematical master, while the writing master teaches arithmetic. Geography, also at a high fee, is taught in one school by the classical master, in one by the English master, in one by the mathematical master. In some large schools again, will be found a writing, a commercial, and a mathematical department striving against each other, all teaching the same branches on different principles, and all at different fees. Education is sold in these schools like wares in a shop, at so much per pound, and the idea of the seller is to sell as many pounds as he can for his own immediate benefit. There is a nominal partnership existing, inasmuch as all the teachers are appointed by the same managing board, and teach in the same building. But all the partners are struggling against each other, thinking only of themselves, and caring for the good neither of the firm nor the trade. More than that, in some schools the partners insist upon a monopoly for themselves. In one school, for instance, there was an excellent scholar and a highly cultivated man at the head of the classical department. He, in his course of instruction, desired his scholars to write for him a weekly English essay on classical subjects. The English teacher in this school objected to the classical teacher setting an English essay in his class, as by so doing he poached upon his monopoly of English. The one argument in favor of this unhealthy rivalry—because it can not be dignified by a higher name—is that it prevents indolence and stagnation on the part of the teachers, and produces vigor and animation and zeal in their respective departments.

2. In some schools there is a curriculum, or at least a prescribed course, but it is not imperative. There are also optional classes at a rather higher rate of fees than the curriculum, and scholars may select either the curriculum or the optional classes. As instances of the working of this system, we would refer to the special reports upon the High

School of Edinburgh, the Inverness Academy, and the Edinburgh Institution. This method of arrangement appears to us to be greatly preferable to the method mentioned above. In country towns such as Inverness, where there can be no great variety of first-rate schools adapted to special subjects such an arrangement is probably the best that could be suggested. The fees are paid into a common fund, so that none of the disadvantages of pecuniary rivalry are produced. The aim of all the masters is the success of the Institution, so that there is no heart-burning on the part of one master at the popularity of another. There is no compulsion put upon the parents to send their children to classes which they consider useless, but, at the same time, all the advantages of a judiciously arranged course of study, drawn up by men conversant with education, are offered to them at a lower rate than they would have to pay for selected classes. That the good effects of this system are appreciated, is proved by the fact that, in the three schools which we have instanced, more than two-thirds of the scholars take the course in preference to the selected classes.

An arrangement somewhat similar to the above is brought about by a system which is in force at Dollar Institution, and at one or two other schools, in accordance with which a "basis fee" is charged for the course, and every one who attends the school has to pay the fee whether he attends one class or all. By this means there is not much chance of a desultory attendance at a class here, and a class there, and there is a kind of method of arrangement throughout the school.

8. The *third* principle of arrangement is of two kinds. (1.) There is one prescribed, invariable and imperative curriculum which is enforced upon every boy in the school, and in every department at the same time. (2.) The whole school is divided into three or more sets of classes, one for each department, and every boy is promoted from class to class in the several subjects, not by routine, but according to his proficiency in each subject, uninfluenced by his proficiency in any other.

In the first case, there is no option left to parents or to teachers. The school is divided into a certain number of classes, and each class goes up from year to year in every department. The first class in classics is the first class in English, and the first class in modern languages, and the first class in every subject, and this class becomes the second class in these several branches next year, and the third class in the third year, and so on. There is no question of fitness on the part of individual scholars for one subject rather than another. It is taken for granted that all are equally advanced in all subjects, and they are promoted by seniority and not by proficiency, by routine and not by merit. The Edinburgh Academy is the best instance of this system. In considering the advantages and disadvantages of it, two distinct questions are raised—Is it desirable that the under masters should be upon a footing of equality, and should teach the whole curriculum from the lowest subjects to the highest, or should there be a gradation of rank among the masters,

and should each be confined to that province to which he is adapted? Is it desirable that boys should be promoted in all departments by routine, or by proficiency? The first of these questions affects the teachers more than the scholars, and something can be said on both sides of it. By having different work to do each year, a man is more likely to keep up his interest in his profession, and to stave off a tendency to mental stagnation. He is more likely also to be promoted to a higher calling if he has been accustomed to teach in the highest classes in the school. It may be also that he gets to know the boys, and understands how to make the most of them. On the other hand, some men are much better qualified for junior than for senior work, and *vice versa*. Higher classics and advanced composition may be very indifferently taught by men who would teach the elements of a language thoroughly. And men whose interests are in the higher paths of scholarship, and who could do much to awaken a boy's mind to an appreciation of the niceties of language, or to the comprehension of classical ideas, would very probably find elementary scholarship excessive drudgery, and would teach it indifferently. Elementary teaching and higher teaching are distinct arts; just as laying the foundations of a building is distinct from raising it architecturally; and one man may be good in the one department, but poor in the other. In English public schools it is usual for teachers to serve an apprenticeship in the lower classes of the school before they are promoted to the higher, and in the years of their apprenticeship their capacity for one department or another is discovered. In the class of Scottish schools to which we are now referring, there is no promotion in the school, and no apprenticeship; a teacher is at once appointed to the vacant class, whether it be the highest or the lowest, and he knows he can not improve his position in the school, but looks for promotion from without. The result of this is apt to be one of two things—the master appointed either settles down for life in his position as under master with his regular routine of classes, and his regular routine of four or five years' work, or, if he is not content to settle down, he must look abroad for his future advancement. And this has a tendency to diminish his interest in the school, and to cause the best men to leave frequently, and the indifferent to remain permanently. On this subject opinion is divided, but the preponderance appears to be favorable to the English system.

As to the other branch of the general question, promotion by routine, or proficiency, the universal custom in Scotland is to promote by seniority. The same class of boys go up year by year, according to their age and time at school, though the difference in their attainments be as wide as is possible to find in boys of the same age. Of the evil effects of such a system it is impossible to say too much. Indeed there is nothing reasonable to say in favor of it, except that it is cheap and simple, that it spares the feelings of the duller boys, and through them of their parents. But the result is inevitable—either the clever boys are

sacrificed to the dull, or the dull to the clever, and not in one subject but in all.

On the practical operation of this principle of promotion the Commissioners cite the opinions of Dr. Hamah, Principal of Trinity College, Glenalmond, who writes as follows:—

With regard to removal by routine, I never heard but one argument in its favor, beyond that of economy, viz., that it has a good moral effect to keep the same set together, as friendships are thus cemented, and the duller boys are spared the discouragement of seeing themselves formally dropped from the race. I doubt the fact of this alleged advantage; but, even admitting it, we can consider it nothing else but an argument for subordinating the interests of the higher to the interests of the lower; in a word, for sacrificing the class to its tail. It would be as fair to demand that every express should carry a luggage train behind it to avoid hurting the feelings of the luggage engineer by *shunting* him. It is deplorable to see clever boys wasting time and patience at the top, while the master, with the instinct which leads him to labor most where labor is most needed, is hammering at the heavy weights of the class. It must be remembered, too, that the Scotch system generally involves a second economy, that of maintaining the same collateral division of classes through every subject; so that if the roll is fixed by Latin and Greek, the same distribution is made to apply to mathematics and modern languages. No doubt this simplifies the time table wonderfully. No plan is so effectual for utilizing all the available time of every master, because each class is handed over entire at every change. But surely no plan can be less just to the boys. To distribute a school on (say) three different subjects into three distinct sets of classes, requires a staff large enough to provide work for the whole school at once in every subject. Yet nothing less than this will suffice to do every boy full justice. A boy may have a special taste for mathematics and no gift for language; in that case it is doing him a direct injury to confine him to the low mathematical class which ranges with his class in classics. Or he may have lived much abroad and become a fair proficient in modern languages, while little more than a beginner in classics. It is a distinct injustice then to make him sit and listen to the imperfect French or German lisping of his compeers in classics, while in that one subject of modern languages he is perhaps the best boy in the school. An unwise economy always leads to waste in the long run; and in this instance it leads, in the case of boys as well as masters, to waste of time and temper, brains and skill. It is needless to dwell on the advantages of a more liberal arrangement; the justice done to every boy by the precision with which his place can be determined; the freedom and vivacity given to examinations, when the removes are made to rest upon them; and the value to the boys themselves, who are made to wait longer in a lower class, of the repetition of their drill in elementary subjects.

Dr. Hodson expressed his opinion in these words:—

This custom, peculiar to Scotland (i.e., promotion of pupils from one class to another without reference to proficiency,) I have long regarded as prejudicial to the best interests of a school, especially when driven by want of endowment to have large classes (often of eighty or one hundred boys) all herded together upon no other principle than that they have been the same number of years in the school, though varying greatly in age, ability and industry. I do not myself believe that it is possible for the very best master to do justice to so large a class even when composed of boys tolerably on a level in point of advancement. But composed, as classes in Scotland are, I know it to be impossible, and have learnt, by the painful experience of thirteen years, that the boys in the lower division of every class (generally almost a third of the whole) suffer a grievous injury both moral and intellectual, equally cruel to them and unfair to their parents, which the most conscientious and painstaking master is powerless to prevent, while his very efforts to do so are injurious to the abler and more diligent boys in this class. This evil is so flagrant, and the remedy so easy (viz., to allow no boy to advance from one class to another unless able to

pass a minimum examination in the work of the previous session or half-year,) that it is to me wholly unintelligible why it should ever have arisen, still less have been allowed to continue. Nothing but the excellence of the raw material of Scottish youth, and the energy and perseverance which distinguish both boys and masters, could have preserved the best system from collapse when afflicted with so fatal a defect.

Such an uncompromising condemnation of this system by two gentlemen who have had so much experience of its operation, and who are so eminently qualified to judge of the effects of it, is unanswerable.

As to schools organized on the third principle, by dividing the whole school into three or more sets of classes, one for each department, and promoting every boy from class to class, according to his proficiency in that class, without reference to his standing in any other, there are very few such in Scotland. It implies a large staff of teachers in proportion to the number of scholars, but it is essential to giving fair play to all classes of scholars. Where the curriculum is fixed according to the yearly class, a boy who is far on in one branch and backward in another is kept too far back in one or pushed too far forward in the other. A boy may wish to attend an advanced class in classics and a low class in mathematics. The highest class in classics is not improbably held at the same hour as that at which the lower class in mathematics is held, and so the boy must give up one or other of the classes, or the hours must be arranged to suit his individual case. But when there is a separate curriculum arranged for every subject, and promotion by proficiency in all of them, both the difficulties of the other systems are avoided.

The Commissioners close this discussion as follows:—

1. There should be a rector or head master in every school, with entire control over the internal economy of the school, including the appointment and dismissal of the teachers. His position should be higher than that of the under masters, and his emoluments should be in proportion.

2. It can not be settled arbitrarily what subjects he should teach. Opinion is rather in favor of his having the classical department under his charge; but so many qualifications besides teaching are necessary for a head master, and such different branches are popular in different places, that this question should be decided locally.

3. The system of individual and independent classes is not satisfactory in its operation. It would be much better both for masters and boys, if this system were changed, and, where practicable a fixed curriculum introduced into every department in all schools.

4. Promotion from one class to another should be regulated, not by routine, but by proficiency tested by class marks and examination each half-year, and efficiency in one subject should not affect promotion in another.

5. Where it is not practicable to enforce a prescribed curriculum, there might be a fixed course of classes recommended but not absolutely enforced, and optional classes at a higher fee.

6. Fees might be paid into a common fund, and the emoluments of the teachers graduated from the highest to the lowest.

SUBJECTS AND METHODS OF INSTRUCTION.

The subjects of school instruction in Scotland are not distributed into institutions of different grades, but are taught indiscriminately in all grades. There is no line of demarcation between the higher and the lower, as to the age of the pupils, their attainments or their instruction. Infant schools run into Elementary schools, Elementary or Primary into Secondary, and Secondary into the Universities. Parochial schools, and those on this model, are attended by children who ought to be in Infant schools; and what are called infant schools are attended by big boys and girls who ought to be in the more advanced schools. The Burgh and Middle-class schools, in like manner, which might be expected to be Secondary, combine in themselves Infant, Elementary, and Secondary schools. Sometimes, in the same class-room, and taught by the same master, there are boys and girls of fifteen or sixteen years of age, reading, it may be Homer and Virgil and Racine, and alongside of them, infants under six years of age learning their letters and the multiplication table, and young men of eighteen and twenty, who, according to age, ought to be in the universities. In the universities, again, there are students far advanced in Greek and mathematics in the same class with those who hardly know the Greek alphabet, and have not learned the elements of algebra, and men of thirty and even forty years of age alongside of lads of fourteen and fifteen. There is no uniformity or organization throughout the country, but schools have been left just as they have grown up, or old schools have been amalgamated with new, so that the general result is a sort of ill-ordered patchwork, and the great marvel is how much good comes out of this disorder. And as it is with the schools, so it is with the departments in the schools.

Out of 15,146 pupils in 69 schools, there were in Greek, 962; Latin, 4,169; French, 3,183; German, 688; Hindustani, 1; Italian, 7; Arithmetic, 11,323; Book-keeping, 974; Mathematics, 1,975; Physics, 545; Natural History, 165; Chemistry, 184; English, 14,028; Writing, 11,333; Drawing, 2,063; Music, 1,227; Mensuration, 91.

In some cases all the branches are taught by one man; in others, classics and modern languages are taught by one, English by another, and mathematics by a third; in others, classics, modern languages, and English are taught by one, and mathematics by another. Some schools, again, instead of following the division into four departments, are divided into three,—classical, English, and commercial; while such a school as Dundee High School contains no less than eight distinct departments; viz.,—classical, mathematical, commercial, writing and arithmetic, English, French, German, drawing and painting. In point of fact many schools are arranged in no very definite principle, but according to the teaching power which can be made available. When the staff of teachers is sufficiently large, the schools are divided into four departments,—classical, English, modern language, and mathematical.

Out of 69 schools, with a total of 15, 146 scholars returned as belonging to the Secondary grade, only six are regarded as strictly secondary; that is, professing to give an education definitely higher than elementary. Out of 969 pupils in Greek, more than one-half (512) are in the six schools; out of 4,169 in Latin, 1,291 were in the same six schools, while of the 14,028 in English studies, only 1,208 are in this class of schools.

Latin and Greek.

In the six professedly classical schools the usual Greek and Latin authors are learned and taught, and in them all, with certain modifications, in much the same stereotyped way. Latin only is taught for the two first years, or in the High School of Edinburgh for the three first years, and after that Greek and Latin go on simultaneously. The highest authors are read in the Edinburgh Academy and High School, and scholarship is brought to as high pitch in these schools as in any other in Scotland. In the Aberdeen schools the system appears to aim at grammatical precision rather than at elegant scholarship, and looks more to the attainment of rigid verbal accuracy than to the acquisition of classical ideas by varied reading. A considerable part of the scholar's time is devoted to writing versions, and very little can be spared for general classical reading. In the highest Latin and Greek class of the Edinburgh High School, small portions only of Virgil, Horace, Plautus, Terence, Cicero, Livy, and Tacitus, and of Homer, Sophocles, Thucydides, Euripides, are mastered, while in the same class of other institutions of this grade, the attainments are far below those of the English Grammar Schools, and of the German Gymnasia.*

Reading.

Reading was in one or two cases very good. The scholars read both poetry and prose with confidence, with expression, and with understanding and appreciation of what they were reading. In most schools, however, there was no expression exhibited in the reading, but the words came out in a monotonous uninterested tone, well enough pronounced and easily followed as words, but with no appreciation of the meaning of the passage, or the intention of the author.

* The following authors in Greek and Latin are read in the Gymnasia of Prussia :—

I. GREEK.

1. Homer, the *Iliad* and *Odyssey* entire.
2. Several Plays of *Æschylus*, *Sophocles*, and *Euripides*.
3. Herodotus, four Books.
4. Thucydides, two Books.
5. Xenophon, the *Anabasis* entire.
6. Plutarch, several lives.
7. Demosthenes, *De Corona*.
8. Plato, *Phædo*.

II. LATIN.

1. Virgil, *Æclogues* and *Æneid* entire.
2. Horace, entire.
3. Ovid, *Metamorphoses* entire.
4. *Elegiac Poets*, various pieces.
5. Caesar, *Gallie and Civil Wars*.
6. Livy, five or six Books.
7. Sallust, entire.
8. Tacitus, *Annals*.
9. Cicero, Orations in part, and the Treatises, "De Amicitia," and "De Senectute," "De Officiis," "De Divinatione," "De Natura Deorum," and "Disputationes Tusculanæ."

N. B.—The above is only the classical part of the gymnasial work: in addition, there is instruction carried on simultaneously in the departments of German, French, and English, natural science, mathematics, etc., and in the case of students intended for theology a course of Hebrew, in which the grammatical training is over before a student enters the university at all.

Spelling.

In some of the largest schools visited we found the spelling very far from satisfactory. This was not confined to the junior classes alone, but frequently in the exercises done by the highest classes mistakes were made which would have been fatal to the authors of them under the standards of the Revised Code. Where dictation was systematically given, the spelling was generally more accurate, and this very important branch of education is more commonly taught in schools than it used to be. There are not a great many schools in which it is never taught, but in some it is a regular part of the course, in others it is intermittent, sometimes given, sometimes neglected. It was generally pretty easy to find out whether the teaching was systematic or not. If the spelling was not bad, the manner of setting about the exercise, and the rapidity or slowness with which the work was done, sufficiently indicated to us the difference between those schools where the subject was regularly taught, and those where it was not.

English Grammar and Analysis.

The ordinary grammar appeared to be given in all schools in a manner that could not but be perplexing and distasteful to any scholar. At best the subject is too abstract for a child of nine or ten years of age. The ideas conveyed by the simplest terms that are employed in it, such even as noun, verb, adjective, are beyond the comprehension of the cleverest boy or girl of that age. But when they get into the abstract nomenclature of the more elaborate grammars, they find themselves in the midst of what is a new and unintelligible language, belonging neither to their own nation nor to any other. In addition to English grammar, taught on the principles laid down in the text-books mentioned above, the same scholar is taught Latin grammar from a different kind of text-book, based on different principles and illustrated by a different teacher; and he is taught French grammar, differing from both English and Latin, and taught by a third teacher, probably a foreigner, and possibly also German and Greek grammars differing from all the others and taught on different principles from each of them. Four or five grammars, all of them of the most abstract kind, bristling with hard and, to a child, unintelligible terms, each calling the same thing by a different name, and classifying the same things in a different system, taught by four or five different men on four or five different principles, tend to form a kind of mental training that can hardly be beneficial.

What is called analysis did not seem to us to be of more utility in education than the more elementary grammar. Grammar, as we are well aware, must be taught, and must be taught in an abstract form. No one ever will be at home in a foreign or classical language unless he thoroughly understands its grammatical instruction and inflexions. But is there any reason why the difficulties and complexities of a language should be intensified ten hundred fold by the use of abstruse terms to indicate simple things? The difficulties in the very outset of the acqui-

sition of a language were increased in old times by the compulsory use of a foreign language. It was the custom, and still is in some English schools, to make the scholars learn the rules of Latin and Greek grammar in Latin. That relict of mediævalism has passed away, but it has given place to the abstract and complex terminology of modern English grammars, and it may be questioned whether the one form of barbarism is better than the other. As we must have grammar, let us be taught one good grammar only—Latin grammar, which is the key to most—and let it be simplified to the utmost. Let us have as few varieties, as few systems, and as few abstract terms as possible; and unless something better be produced by analysis of sentences than is produced at present, it would be almost as well that it should be given up altogether.

History and Geography.

In more than one school we found that history was taught by means of catechisms containing questions, the answers to which were repeated by the scholars parrot-like, and without apparently realizing the events narrated and their causes and consequences upon the periods embraced by their answers. The bearing of circumstances did not appear to be considered of importance by many of the teachers. The facts contained in two pages of the text-book which formed the lesson of the day were generally dwelt on, and no attention was given to any general deductions which might be drawn from them. Neither were history and geography made to play into each other as they should be in any intelligent instruction in either subject. History was learned by two pages per diem, or by historical catechisms, and geography was taught in the same manner by certain maps at a time in connection with a text-book. In only one school did we find the boys and girls using their maps along with their history lessons, and when questions in geography were asked, suggested by the passage that was being read, the answers given were more rarely intelligent than the reverse. In schools which follow the text-book system, geography becomes troublesome and useless to the scholars, and a lifeless exercise to the teachers. The former learn by heart a string of names out of their geography book which are supposed to represent towns, mountains, and rivers in Africa or South America, and they come down to school with those names learned overnight in their heads and say them in the morning with no idea that they represent any thing but words hard to remember and difficult to pronounce. The latter hear them say these names, keeping their finger on the place in the text-book, and often apparently with as little interest in what they are teaching as the scholars in what they are saying. The same thing was apparent in the elementary schools. Geography, which might be made a most attractive subject, is too often the reverse, and the reason is found in the uninteresting nature of the text-books.

Physical geography is taught but in a very elementary and not very attractive way. The scholars are carried away by their text-books to some inland sea in the middle of Asia, or to some unusual formation in

central Africa, and they learn the names of these things with a boyish interest, and a view to gain places in the class by a knowledge of them. But they are rarely taught the physical nature of their own country, neither are they led to see the bearing of the physical conditions of a country upon its history, or upon its people. Where this sort of instruction is attempted, it has not hitherto been successful. The boys are said to take no interest in it. In three or four schools we gave as a subject for an English essay, "The effects of the physical features of a country upon the character and pursuits of a nation," with a view to ascertain how far the scholars had gained any insight into this question through their lessons in physical geography, and at the same time, to test their powers of English composition. Upwards of fifty of the most advanced boys in these schools answered this question, but only two of the essays showed any knowledge on the subject or interest in it.

English Literature.

Instruction in English literature is given through the medium of such books as Spalding's, Collier's, or Armstrong's *Literature*, learned at the rate of two or three pages a day. These books are compiled in the form of histories of English literature from the Anglo-Saxon period down to the present century, giving the names and dates of the different authors, some details of their lives where such are available, some quotations from the authors, and short epigrammatic criticisms upon them.

It is very questionable whether any educational good can be gained by teaching English literature out of a text-book. The scholars may remember the names of a number of authors, and they may pick up some fixed and stock criticisms from their text-book; but such knowledge can be of little service either as an acquisition or as mental training. It can conduce neither to intelligent appreciation of English literature, nor to intelligent criticism. It can be nothing but crammed knowledge, to be forgotten as rapidly as it is learned. An acquaintance with the names of some half-dozen Latin and Greek authors, with the number of the plays of Æschylus or Sophocles; a few pat criticisms on Herodotus or Livy, together with a knowledge of the number of books in the *Iliad* and *Odyssey*, would go a very little way towards classical culture.

Modern Language Department.

The only modern languages which are studied to any extent in Scotland are French and German. Italian is taught in one Burgh school—Tain—but there was only one pupil in the class, a girl of sixteen, and she had only just begun the grammar. At Dollar there was a class of six in Italian, but, except in these two cases, there appeared to be no demand for this language. German is not taught in any but the more important schools, and no very great progress was made in it. But in French there are 8,188 scholars in the different schools which we examined, and there appeared to be a large and increasing demand for French throughout the whole country.

It is very rare to find a foreigner in this country who can maintain

discipline, and enforce the attention of his pupils, and understand them thoroughly. It is still rarer to find one who has a complete command of English; and it not unfrequently happens that men from France or Germany are employed as teachers, who have no previous training as teachers, and not very much general education, and it would be well that no foreigner should be employed in any school who is not provided with some recognized certificate of competency. Where an uneducated man is appointed there can be no systematic instruction. A man of this stamp dislikes the drudgery of teaching the ordinary elements in the ordinary way, and is apt to branch off into schemes of his own. He takes to teaching French conversationally, which generally results in little but inaccuracy; or he teaches on the Hamiltonian method, which is fatal to any thing like a thorough knowledge of the language; or he despises teaching, and takes to lecturing. This peculiarity is very dangerous, but it appears to be attractive. Where the teaching of modern languages aspires to something higher than a mere hearing and saying of lessons, it is apt to waste itself in vague attempts to teach the principles of the language. When, instead of drilling boys and girls in the routine work of elementary teaching, a master spends most of his time in attempting to expound the distinctions of grammar, and the force and meaning of the terms "declension, tense, mood," and so on, it is not unlikely to result in a misdirection of aim and energy. And when to that he adds an imperfect knowledge of English, he is certain to involve himself, and the subject, and the pupils in great obscurity. On the other hand, when the classical or English teacher gives lessons in French or German, he very seldom can carry his pupils beyond the merest elements. Few Scotch or Englishmen, who, from the nature of their professions have been obliged to live in this country, have any great command of either French or German, or the same familiarity with them that they have with their own language, or even with the classical languages, and hardly one has a correct pronunciation. Exactly the same difficulty is experienced in French schools. Few of the teachers there are able to teach English with any precision or accuracy, and very few scholars become accomplished English scholars. In the departments in the schools visited which were taught by the classical or other teachers, we frequently found a good knowledge of French grammar—in one or two we found some progress made in translation and composition, but in all the accent was very indifferent, and not unfrequently there was want of confidence both in teachers and scholars. The girls passed very much better examinations in languages than the boys.

Mathematical Department.

In pure mathematics we found altogether 1,975 scholars, but if we include arithmetic under the head of the mathematical department the numbers are increased by 11,823. In these subjects we found less diversity than in modern languages. Our estimate of the teaching in the

mathematical and arithmetical departments shows that 29 per cent. of them are good, 27 per cent. fair, 33 per cent. indifferent, and 11 per cent. bad. This is a good deal better than the modern language departments, of which we considered only 10 per cent. to be good, and 22 per cent. to be bad. In some of the schools the teaching was remarkably good.

Writing.

There are 11,333 scholars attending writing classes, or 74 per cent. On this subject we have not much to say, except that it appeared to us that a very considerable number of boys and girls of sixteen years of age and above were spending five or six hours per week on writing, which might have been more profitably spent on some higher work. Five hours a week for forty-four weeks represent 220 hours in the year, and that time honestly devoted to languages or to science, or even to drawing, would tend to quite as high a standard of education in a boy or girl of sixteen years of age as the same length of time devoted to handwriting. Opinions, however, on this subject differed. Some very good men with whom we conversed upon the subject considered that good handwriting was so important in commercial life that parents very much preferred that their sons and daughters should write well than that they should be proficient in any other branch of education.

Book-keeping.

In Book-keeping there are 974 scholars returned, or rather more than 6 per cent. of the whole number of scholars. This is nearly 1 per cent. more than there are in all the sciences put together, and almost exactly the same as the total numbers returned in Greek. This feature in Scottish education is worth remarking, as indicating the extent to which the utilitarian idea of education is carried out. It is more generally found in Private than in Public schools. In the former 15 per cent. of the whole scholars on the roll are returned in book-keeping. In most public schools the fee charged for this subject is generally 7s. 6d. a quarter, or £1, 10s. per annum, which is quite as high as the ordinary fee for Latin and Greek or modern languages. It is paid, however, ungrudgingly by the parents, yet the result, so far as we could judge of it, is hardly adequate. The systems differ in almost all schools, and very little practical good seems to come of it in any. The scholars like it because it is a change from arithmetic, and is, generally speaking, easier work; but merchants tell us that most offices have their own system of book-keeping; that young men entering their offices have to begin book-keeping on their system as soon as they are fit to keep the books; and practically that any teaching of the theory of the subject which they may have learned at school is of no great value. If this be so, it would seem that 7s. 6d. a quarter might be better spent on some subject of more general educational value.

Drawing and Music.

In Drawing we find 2,063 scholars, and in Music 1,227. The popularity of the former subject, we were informed, was increasing, and in

several schools, those in Ayr, Stirling, Cupar, and Dundee, in particular, great facilities were afforded for thorough instruction in the subject.

Music, except of the most elementary kind, had not attained the popularity of the sister art; but in some schools, more particularly in the Inverness Academy, the theory of the subject was well taught, and great proficiency was attained by some of the pupils in the art.

Phonography.

The subject of Phonography has been introduced at the High School of Dundee. The department was founded and endowed a few years ago by a Mr. Caird, who gave £100 for the "encouragement of phonographic classes." The master teaches "Pitman's Phonetic Shorthand," and uses as text-books Pitman's Phonographic Teacher, Manual of Phonography, and Reporter's Companion; The Cabinet and Shorthand Magazine are employed as reading books for pupils who are sufficiently advanced to require them.

Results in Reference to Competitive Examinations.

No one can compete for the appointments in the Indian Civil Service until he is seventeen, and, though no subjects are obligatory, a man is expected to pass a good examination in all the ordinary branches of a liberal education. English, classics, mathematics, and French, are the subjects in which the successful candidates generally gain most marks. Last year (1866) 82 per cent. of the whole amount of marks obtained were due to these subjects. But the standard reached in them is very high. Under the head of English is included the history of England and the Constitution, and also the literature and language. The examination in classics and mathematics takes a wider range,—wide enough to do justice to a good Cambridge wrangler or an Oxford first classman; and in French it is also high, but in a lower scale than either of the other subjects. It is clear, therefore, that such a test as this is inapplicable to the Scottish schools, though appointments have been gained, from at least one of the schools, without supplementary aid. But it is unfair that the great majority of them, where a boy's education is completed at sixteen years of age, should be tested by the same standard as that by which the best men at the English universities are tested.

The Competitive Examinations for the Military Service, in like manner, are hardly fair tests for the bulk of the Scottish schools. Candidates present themselves for three grades of examination in that service,—for admission into the Military Academy at Woolwich, for admission into the Military College at Sandhurst, and for direct commissions in the Cavalry, Guards, and Line. The minimum age at which candidates are allowed to compete for the third grade of examination is eighteen, and that at once limits the test to the two first grades. From the schemes of examination for these two competitions it is obvious that the instruction requires to be very special to secure success in them, and it is very doubtful if the general course of school instruction, either in this country

or in England, is well adapted to meet the requirements of these examinations without any supplementary and special training. In the list of honors, however, which we have obtained from most of the important schools visited, five at least claim to have sent successful candidates.

Clerkships in the Home Civil Service may be roughly divided into two classes, (a) for which the subjects of examination are handwriting and orthography, arithmetic, including vulgar and decimal fractions, English composition, geography, English history; (b) for which the examination includes the following subjects in addition to those above stated: One (sometimes two) foreign languages, an option being generally given, Euclid or Algebra. In examinations which are not competitive, the examination in language is almost invariably restricted to translation from the language. In competitions, marks are allowed for translation into the language, and, in case of a modern language, for speaking. The standard adopted in marking is such that the candidates, to be successful, must get very nearly half marks for the primary subjects, such as arithmetic, spelling, handwriting, and English composition, while a third of the maximum in the secondary subjects may be sufficient.

These appointments, however, with very few exceptions, are open only to candidates who are seventeen years of age and upwards. In the various civil departments specified in the Report of the Civil Service Commissioners for 1866, it appears that only about 6 per cent. are open to lads under sixteen years of age. For the examinations for admission to these departments the Scottish schools do supply an adequate education, and candidates gain appointments from them without supplementary aid, but the standard for success in the competitions for the higher departments is too advanced for the great majority of the boys attending the schools in Scotland. When, however, we come to the Competitive Examinations at the Scottish Universities we find that the schools will stand the test. There are bursaries at the Universities of Aberdeen and St. Andrews open to competition, and a few at Edinburgh and Glasgow, and scholars from many of the schools compete successfully for them. In these examinations there is generally no prescribed minimum of age, the standard is of course adjusted to meet the quality of instruction in the schools, and in many of the schools, more particularly in the North, the object of the instruction given is to prepare for success in these examinations. If, then, this be taken as a test of sound and adequate instruction, many of the schools do meet it.

Practically, preparation for the Scottish Universities is the standard at which the schools aim. The average school course is one of six or seven years, and scholars attend from nine or ten to fifteen or sixteen years of age (though many are younger than this, and a few are older), and after that they proceed to the Scottish Universities or go into commercial or other pursuits. At the universities they remain till they are nineteen or twenty, and then go on to the English Universities, or into the Home and Indian Civil services, or into their various professions in this country.

PUBLIC INSTRUCTION IN SWEDEN

AREA—POPULATION—GOVERNMENT.

SWEDEN, excluding Norway, has an area of 167,042 English square miles, on which, on the 31st of December, 1865, there was a population of 4,195,641, of whom 611,878 were inhabitants of towns having a municipal organization. Four-fifths of the population are devoted to agricultural pursuits, but only a small portion are owners of the land which they cultivate, more than one-eighth of the area of the kingdom belonging to the nobility. Mining is a leading department of Swedish industry, iron, copper, lead, and zinc constituting the bulk of the foreign and domestic commerce. Within a few years the manufacture of iron, woolen and cotton cloths, of implements in iron and steel, and other articles of domestic consumption, has greatly increased, and affected the importation of goods from Germany and England.

The government of Sweden, in its executive department, is united with Norway—the conditions of union having been determined upon by the Congress of Vienna, and accepted by the Norwegian Parliament, Nov. 4, 1814. According to the constitution of June 6, 1809, the law of royal succession of Sept. 26, 1810, and the amended regulations for the formation of the Diet, adopted Dec. 8, 1865, the king, who must be a member of the Lutheran Church, has the right to declare war, make peace, and pardon criminals. He nominates to all appointments, both civil and military, concludes treaties, has a right to preside in the Supreme Court of Justice, and has an absolute veto against any decree of the Diet or Parliament.

The Parliament consists of two Chambers, both elective, but representing different interests. The First Chamber, or *Upper House*, consists of 119 members, who are elected for a term of nine years, and serve without pay, and represent the 24 *lan*, or government districts or counties, and the municipal corporations. The member must have landed property to the taxable value of \$20,000, or an annual income of \$1,200. The Second Chamber, or *Lower House*, consists of 185 members, 52 of whom are elected by the towns, and 133 by the rural districts. All natives of Sweden over 21 years, having landed property to the value of \$300, or an annual income of \$280, are electors; and all natives, aged 25, having the same pecuniary qualification, and professing the Protestant faith, are eligible as candidates.

The king is assisted in the administration of affairs by a Council of State, consisting of ten members, seven of whom are responsible Ministers. The Ministries are:—(1,) Justice. (2,) Foreign Affairs. (3,) Finances; (4,) Interior; (5,) Marine; (6,) War; (7,) Education, including Ecclesiastical Affairs.

The established religion is Lutheran, organized into 1 arch-diocese (Upsala), and 11 bishoprics, which include 2,500 parishes. None but Lutherans could be employed in the public service down to 1869, when an act of religious liberty was passed, mainly through the efforts of Prof. P. J. Silgestrom.

GENERAL DISTRIBUTION OF INSTITUTIONS.

The Institutions which together comprise the system of Public Instruction in Sweden, although not in organic connection with each other, may be classified and will be treated as follows:—I. The Popular School (*Folkskola*), including the Preparatory, Stationary, and Itinerating Schools, with which may be classed the various Improvement Schools, such as those held on Sunday and in the evening; part of the elementary Special Schools of various character, such as the lower trade, farming, forest, and smelting schools; and part of the educational institutions for the blind, the deaf and dumb, the asylums for orphan and neglected children, and the so-called *Krippen*. II. Schools of the middle grade, in Sweden termed Elementary Schools, such as the gymnasiums and real-schools of Germany, with which must be classed the so-called elementary technical schools, farming, mining, forest, and commercial schools, together with the military school at Carlberg for the training of officers of the line, and the naval school (*Flottansskola*) at Stockholm. To these may be added several institutions, generally private, imparting higher instruction to women. III. Universities, with which are to be classed the Carolinian Institute at Stockholm, which is a medical school, the Technological Institute, and the higher mining school connected with it, the higher agricultural schools at Ulltuna and Alnarp, the higher military institution at Marieberg, together with the State seminary for female teachers at Stockholm.

The institutions of education have their central State authorities (*Staatsbehörden*) in the different Ministries. The Popular Schools, the Elementary Schools, the Universities, and the *Carolinska Institutet*, belong to the Ministry of Ecclesiastical Affairs; the town trade-schools (*Fachschulen*) partly to the Ministry of the Interior, partly to the Ministry of Finance, and the military schools to the Ministry of War. In the *Ecklesiastik-departementet* are two sections, each consisting of a so-called executive secretary, (*Expeditionssecretär*) with a staff of clerks. One of these has control of the Popular Schools, the other of the Elementary Schools. These bureaux have charge of all matters relating to education that come before the Ministry. The Universities are under the charge of the so-called chancellor service (*Kanzleramt*) of this bureau. The Minister of Education and Ecclesiastical Affairs is supreme.

I. THE POPULAR SCHOOLS.

1. *Historical*.—The system of popular schools in Sweden is as old as the Reformation, since here, as in other countries, Protestantism and popular instruction went hand in hand. But the Swedes were never, not even in the Middle Ages, in the low condition of the *glebe adscripti* in the feudal countries of Europe. The habit of independent ownership produced in the peasant a sentiment of personal independence and love of country which often made itself felt in successful uprisings against foreign or domestic oppression. The moral education of the people, thus transmitted from father to son, had therefore a firm foundation. Christianity, in the early form of Catholicism, had softened somewhat the hard Viking spirit, but had done little for intellectual training. Schools existed in the monasteries, where the monks taught boys memorizing lessons, writing, music, and the catechism, and the nuns instructed girls in their religious duties and in housekeeping; but the literary instruction, which was imparted to nobles and peasants alike, rarely went beyond the rudiments. The Benedictine and Cistercian monasteries were the most important establishments, but they aimed not so much at general intelligence as the training of a few for the priesthood. At a later period came the begging friars (Franciscans and Dominicans), a class of itinerating teachers, who painfully gained their support by soliciting alms, and teaching in families the dogmas and ordinances of the church, or rather the most common formulas of prayers and confessions: This instruction, limited as it was, at last completely absorbed the already decaying monastery schools.

The only text-book was the so-called Saxon Catechism of Charlemagne. The art of printing was introduced into Sweden in the year 1482, when Bishop Hans Brask set up the first paper factory, and caused the Holy Scriptures and various books of devotion to be printed. With the Reformation came the strongly-enforced duty of the independent perusal and study of the Bible; and the first Protestant kings, particularly Gustavus Vasa, Charles IX, and Gustavus Adolphus, were zealous patrons of popular instruction. It is claimed that Charles IX, when Duke of Wärmahnd, founded many popular schools there, with such success that as early as 1637 there was hardly a peasant child within his domains who could not read and write. Queen Christina, under the lead of Chancellor Oxenstierna, in 1640, with the approval of the council and the states of the kingdom (*Rikens Ständer*) attempted to found schools in every city in the Swedish dominions, in which reading, writing, and ciphering should be taught to all children. These schools, called *Pædagogien*, were the germs of the Popular Schools, whose first class was in the A B C, but whose highest was a lower classical school.

In the sixteenth century there were very few stationary schools, except in the Bishopric of Lund, where, at the time of the introduction of the Reformation into Denmark, under whose sovereignty this province then

was, the establishment of classical and popular schools had commenced. During this period the little instruction given was itinerating, the first stationary *Fasta Skolor* having been founded in 1617 at Sigtuna, and during the seventeenth century only nineteen, or according to some authorities, only twenty-one of these schools were established, and generally by some prominent person, such as Gyllenhjelm, Brahe, de la Gardie, and Skytte. It was not till the middle of this century that the first arithmetic in the Swedish tongue and the first map of Sweden was published.

In 1634, Chancellor Oxenstierna, who had felt the deficiencies of existing methods and who had made himself acquainted with the *Didactics* of Ratich, on the recommendation of the Princess Anne Sophie of Rudolstadt, who had been a pupil of this educational reformer at Magdeburg, appointed a commission to examine into his system, which reported favorably. But the Chancellor, interrupted by the exigencies of a great war, did not begin the reform which he contemplated, although he resumed the subject in 1638, and invited Comenius to visit Sweden to undertake the work. He did not go till 1642, preferring an invitation to begin a similar work in England. In 1642, Comenius, whose plans in England had been interrupted by the civil war, was employed by the Swedish government to compose a work on *Methods of Instruction*, which was not completed till 1646, and published, till 1648, under the title of *Novissima Linguarum Methodus*.* In the advantages of this publication the schools of Sweden only shared in common with the higher schools of Europe, Comenius himself having been called to Hungary by Prince Ragozki, where he spent four years in organizing a school at Patak, and in preparing his most celebrated work, the *Orbis Pictus*.

With the year 1686 dawns a new era for the popular schools, when Charles XI ordained that the sacristan should instruct the children in reading, while the religious instruction shall be conducted and inspected by the clergy, and carried on by means of sermons, catechisations, and annual public examinations (*Häsförhör*), a regulation which is still in force. A law was also passed that "No one should enter the married state without knowing the lesser catechism of Luther by heart and having received the sacrament." This last ordinance drove the peasants, through their representatives, to petition the *Riksdag* for the erection of chil-

* For Baumur's account of the educational system, both of Ratich and Comenius, see Bernard's *Educational Reformers in Germany*. In his notice of Comenius, he cites the following account of his interviews with Oxenstierna, and Johannes Skytte, Chancellor of the University of Upsala:

"Oxenstierna, the Northern nobleman, examined me more closely than any learned man ever did." "I observed in my youth, said the Chancellor, that the usual method of teaching was too harsh; but was unable to discern wherein the fault lay. When, afterward, the king sent me as ambassador to Germany, I spoke upon this subject with many persons. When I heard that Ratich had come out with a new method, I had no rest until I had seen the man himself; but instead of a conversation, he gave me a thick quarto to read. After I had read the whole book through, I found that he had well enough explained the defects of the schools; but the remedy which he proposed seemed not adequate. What you bring forward is better founded." In a subsequent interview the clear-headed Chancellor desired to recall Comenius from his boundless undertaking of constructing a system of universal study, down to the preparation of a Manual adapted to schools as they were, and such as the government and parents could make under existing circumstances. With this view, he offered to make an annual allowance towards his support, while he should prepare such a Manual; which Comenius did and published in 1648.

dren's schools throughout the land at the expense of the State, although the effective organization of the popular school system was not attained till a century later.

The leaders of the so-called Period of Freedom manifested much interest in popular enlightenment. In a letter dated Feb. 19, 1768, the governors of the provinces and the consistories were called on to suggest how the instruction of the peasant children could be better organized, how school-houses could be erected, the support of school-teachers obtained, and good school regulations generally could be drawn up. These suggestions, such as they were, were not carried out, for during the whole eighteenth century not more than one hundred and sixty-five stationary schools were established; the instruction outside of their localities being imparted in village-schools (*Dorfschulen*) which had no abiding place, the teachers being often very ignorant, and not unfrequently graceless scamps, drunkards, or ruined people, and both subjects and methods being extremely limited and defective. However, the school-fees were very small, being two, three, or four *skillings* a week for children learning to read, and six to eight for those who studied writing and ciphering. A Swedish popular school in the seventeenth century presented a peculiar aspect. The discipline was rough, the punishments barbarous. The school was gathered in an ordinary peasant's room, where the occupants carried on their domestic occupations; at the end of the great dining-table sat the teacher, called "master," and near by sat the little children, or "A B C pupils," on stools or benches without any backs, while a little farther away, according to their proficiency, sat the other scholars with their books in their laps; only the few who were learning to cipher and write sat at the master's table. The text-books consisted of the Horn-Book, the Greater and the Lesser Catechisms, together with the Hymn-Book. When the pupil had mastered the art of reading in these three books, and had learned the catechism by heart—without any test of his understanding it he was ready to graduate, and the teacher was dispensed with. Occasionally children of bright parts or whose parents were in better circumstances, were taught to write and cipher, but copies and manuals, with the proper solutions, were not used, which occasioned great waste of time. This picture is dark, but accurate, even far into the present century.

Between 1800 and 1842, the number of regularly-organized popular schools, with a permanent teacher, and fixed residence and accommodations for the school, was increased from 165 to 786, but was still insufficient for a population of three and a half millions. A new impulse was imparted by the discussions which grew out of the controversies of the Bell and Lancaster methods in England and Denmark, and the system of mutual or monitorial instruction generally, which proposed to secure universal elementary education of nations at the minimum of cost. A government circular was issued in 1820, wherein the clergy were enjoined to visit schools, examine teachers, and exclude all unqualified and

immoral candidates. In 1824 the monitorial system was formally recognized by royal decree, societies to aid in its introduction were organized in Stockholm and Gottenburg, and two Normal and Model Schools, one at the capital and a second at Lund, were established, to train teachers and exhibit details of organization and methods. By these means the system was rapidly and almost universally nationalized. Deficient as this system was soon shown to be, especially in the hands of inefficient teachers, who converted it into a mere mechanical agency for the most rudimentary memorizing, it accomplished much good in bringing the popular schools into some uniformity, and in establishing some agencies for arousing public and parental interest, which were afterwards turned to better account. At last, in 1840-41, after great opposition, a proposition for the thorough organization of popular schools was introduced into the *Riksdag*, and in June, 1842, became a law, by which the support of schools became obligatory on the local municipalities, and the attendance of children at school for a certain period of time was made obligatory on parents. In 1849, a competent educator (Prof. P. A. Siljeström), was authorized to visit other countries, and among them the United States; in whose school system, and especially in the practical agencies by which the public mind was educated up to the appreciation and adoption of proposed improvements, he saw much to admire. His report to the minister was published in 1852, and appeared in London in the year following, in an English translation.* Prof. Siljeström's suggestions and subsequent labors have had a happy effect in awaking popular feeling, securing important legislation, multiplying the number of female teachers, improving the structure and equipment of school-houses, and in developing the scientific and industrial side of public instruction.

In 1853 the establishment of an elementary school of a higher grade was made obligatory in villages and districts having over sixty pupils. In 1861, a system of state inspection was inaugurated; and in 1865, the professional training of teachers was more thoroughly provided for—and about the same time the Peasant's High School, closely resembling the old American Lyceum, was begun under the voluntary action of young farmers from the age of 18 to 30 years. This temporary agency for supplementing the work of the popular schools, is reacting very beneficially on the schools themselves.

* *Educational Institutions of the United States, their Character and Organization.* By P. A. Siljeström. Translated from the Swedish by Frederica Rowan. London, 1853. 412 pages.

This book of Prof. Siljeström even now is the best exposition of the great principles and practical working of our educational system, which has appeared from any foreign visitor. The author had studied the system and schools of his own country, and of Germany and Switzerland thoroughly, he appreciated the excellences of our American political institutions, spoke the English language with remarkable correctness, sought out practical school officers and teachers, and staid long enough in a city or State, to understand the organization and working of the system. Since his return he has labored in the spirit and with the methods of our American education, and has directly and indirectly improved and modified essentially the system of popular education in Sweden. To his labors is due the abrogation of the religious test for public office, which in a country otherwise so free, was a disgrace to the statute book.

II. EXISTING ORGANIZATION.

The main features of the law of 1842, with the modifications since made, are as follows :

(1.) Three grades of popular schools are recognized, viz. : *First*, The *Sma Skolor*, or Preparatory School, corresponding to our Primary School, for young children, under a female teacher; *Second*, The *Fasta Skolor*, or Stationary School, with a fixed residence for the teacher, and accommodations for the children; *Third*, The *Flyttbara Skolor*, or Itinerating School, which is only tolerated in rural districts, where the families are so scattered as not to have a school-center within a walk of three miles for the most distant pupil.*

(2.) In every township, or church district, there must be at least one stationary school, with a teacher who has passed the Seminary examination, and this requirement can not be omitted except in case of a small and sparsely populated district.

(3.) In every school district, a school council, of which the oldest clergyman is president, must be elected, and for each diocese or county one or more inspectors are appointed by the Minister of Education. The local management of the popular school is committed to a district or command committee or council, of which the oldest clergyman is chairman, whose vote in the election of a teacher counts as much as one-half of all the members. The members of this committee are elected by a majority of the legal voters of the parish or local district, and serve for four years. This committee on any doubtful point defer to the action of the diocesan, or county board, and the state inspectors. In the capital (Stockholm), the commercial city of Gottenburg, and the manufacturing town of Nakoping, the public schools are organized under special laws, and the entire management is committed in each to a Board of Education.

(4.) Every district must provide a proper place for the school at the expense of the district. If a district or parish is too poor to meet the expense of the school, it receives aid from the diocese in the State. In most districts apartments are provided for the teacher in the same building, and land for a garden is attached.

(5.) Every district must pay at least the minimum salary fixed by the government. The salaries paid to the popular school teachers are on a narrow scale, and are only made bearable by the permanence of the office and a system of pensions.

(6.) Every parent, or guardian of children, is held responsible for the school attendance of the children of the age, and in health, to attend. Masters or householders, having servants, and employers of children, within the school age, must see that they receive the minimum instruction fixed by law, viz., the ability to read, write and cypher, to join in

* In 1865 there were over 20,000 children of the school age who must walk from three to four English miles to the school, and over 70,000 who had to walk over two miles.

the singing of psalms, and sufficient religious knowledge to be admitted to the communion.

(7.) Each diocesan town must have a Teachers' Seminary, or class for the training and improvement of teachers. The most marked improvement in the system and condition of the popular schools is in the provision respecting teachers. The occupation is now open to both sexes, and for the same qualifications they are paid alike. There are 8 regular seminaries, 6 for males, (at Upsala, Gottenburg, Linköping, Wexiö, Lund, and Hermosand); two for females (at Stockholm, and Skava); and in the chief towns of the other dioceses or counties, there must be a Normal Class or Teachers Institute held every year. The course in the regular seminaries occupy three years. The candidate for admission must show in examination a thorough knowledge of the studies of the popular school; and to be entitled to a diploma, must have passed satisfactorily the annual and final examination, which last is conducted by the State Inspectors. Each seminary has a rector, and at least three assistants, besides special instructors in drawing, music, gymnastics, and the ordinary military drill. If the candidate has graduated at the University, he is obliged to attend only on the practical exercises of the second and third class. The academic year lasts 36 weeks, of two terms, the first beginning August 28, and continuing 16 weeks; and the second, January 15, and lasting 20 weeks.

(8.) The subjects of instruction are prescribed both for the Popular School and the Seminary. The following time-table exhibits the range of elementary instruction and its formal distribution in the Teachers' Seminary:—

Assignment of Hours per Week in Teachers' Seminary.

Subjects.	First Year.	Second Year.	Third Year.
Religion,.....	6	6	4
Swedish Language,.....	6	4	3-4
Arithmetic and Geometry,.....	4	4	2
History and Geography,.....	4	4	2
Natural Sciences,.....	3	2	2
Pedagogy and Mutualology,.....		2	2-4
Penmanship,.....	3	2	1-2
Drawing,.....	2	2	2
Music,.....	4	4	4
Gymnastics and Military Drill,.....	3	3	2
Gardening and Fruit Culture,.....	3	2	12

9. Children of both sexes are educated together in the rural districts, and the lower classes, but in Stockholm, and the large villages, the girls are taught by themselves in separate class-rooms.

Count Zannini, secretary of the Italian legation at Stockholm, in a Report to his government remarks: "The elementary schools of Sweden, are nearly perfect, and the system is admirable. The people are poor; the country in many places thinly inhabited, the cottages widely separated, and the winters are bitterly inclement, and yet education is nearly universal."

find a medium between the election by the community and the appointment by the department. So much is certain, that a government which takes charge of the training of the teachers, must also have some appointments at its disposal, in order to secure a proper sphere of activity to the ablest candidates; but it is also as certain, that a government has too much power when it is allowed to force upon a community a teacher of little ability or affected with moral stains.

But the responsibility of the department is not confined to this one point; it is also responsible for the general course of education in public schools in direct proportion to its legal power. It is, therefore, exposed to many attacks from the most opposite parties, and is charged with being the cause of the disappointment of many—frequently unreasonably great—expectations. The main point of attack is, that the technical members of the department are not taken from among the public school teachers but the clergy, which rouses the fear of theological one-sidedness and of partiality for the interests of the Church. The teachers have advocated the principle that it is a privilege of the school to be represented by teachers in all branches of its administration. Though the general rule will, at least for some time, be observed, that the road to employment in the higher offices leads through the university; yet the Minister of State, in preparing the new school law, has taken the advice not only of clergymen, but also of experienced teachers, and, at present, some of the latter have again been called upon to coöperate in the construction of a new plan for training teachers, whilst they have been employed for some time already as examiners of candidates. The contact of the highest branch of administration and the best practical school experience can not but be advantageous for both.

It has been shown in a preceding section, that the legal demands on the public schools are moderate enough, but that these demands have by degrees grown larger and more manifold. The spirit of our age requires that not only the privileged classes but the whole people should be in possession of what is worth knowing; that every thing useful should be taught at school, that the interest of the pupils should be aroused, and that they should be well prepared for practical life. Our public school system derives great assistance from this tendency, the abler teachers find themselves encouraged; all concerned agree with it in principle; but different opinions prevail in regard to what is attainable. For the humane and popular tendency of our age has a dangerous friend, who threatens to destroy the essential character not only of the public school, but of all educational institutions; it is the fallacy that all knowledge useful to a man in life should be crowded into the school. This fallacy leads to plans of study which dazzle the eye at a distance by the brilliancy of their colors, lead to overwork in the institutions and to misappreciation of the vital element of all study, viz., thorough devotion to one thing—a practice which is surer of success when there are few subjects of instruction, than when the mind is bewildered by the confusing

multitude of studies. Public opinion is, at present, under the influence of this fallacy, and there are few who speak a word of warning, unless, as it has happened, some one goes so far as to contend that the people have a right to demand an æsthetic culture, that dramas should be performed at school, or unless another desires that, instead of the Bible, chemistry should be taught, (to children below fourteen years,) in order to teach the parents to prepare manures more rationally. But such demands do not usually proceed from men who are really in connection with the school; they are propagated by a literature which advocates superficiality instead of thoroughness. It is the same which, most unjustly, accuses our Evangelical public schools, whose very soul is sacred scripture, that every study is neglected or must give way to religion.

The number of subjects taught and the objects in view are naturally limited by the power of comprehension in the children and by the ability of the teacher. Take one step beyond either, and it will be found that not more, but less is effected, and that the force wasted in the fruitless task of doing what is impossible, is turned away from that which is possible. It must also be remembered that our school-books are not like those in France, England, and America, in which the different subjects are taught in a logically-arranged series of questions and answers. Teaching progresses by that system steadily on those leading strings, and the individuality of the teacher is of little account. But, with us, an independent treatment of the subject and method of teaching it, is not only allowed but required. This liberal system, so favorable to the cheerful development of the teacher's powers, requires a thorough knowledge of and penetration into the matter, and a well developed gift of expressing thought clearly; for without the latter, confusion in teaching and learning must be the consequence. The public schools of our days, having discarded their former simplicity, show all the peculiarities of trial-schools; much diligence is shown, but the growth of fruit is impaired by change of subjects and method. Old teachers must find it very difficult to give up old habits, to accustom themselves to new ones, and to impart them to their pupils. It is not difficult to understand that every innovation must be followed by a temporary loss of power and success, when the great difference of ability of the large number of teachers is duly taken into account, and that even real, general progress must be bought by retardation in detail. This fact again proves the difficulty of the task which centralization in government has to perform. There is no want in impelling power; its transmission is also in order, but the power of the different wheels to take up and to continue the movement imparted to it is very irregular.

A more important consideration is the training of able teachers. This is another duty of the department and much has been done in this direction. The communities had formerly to procure their teachers as best they could, and the young men who had an inclination to devote themselves to the profession of teaching, were compelled to find somebody

who would teach them; a community would apprentice a poor, able boy to the schoolmaster to be trained for the profession; the school-board had no other obligation but to examine the candidate. It is, at present, the State that takes charge of all that, with all the responsibilities. And there is another fallacy, which leads to unreasonable demands. The teacher of a public school is to be trained to be a teacher of the people in its widest sense. Besides proficiency in elementary subjects and organ-playing, he is expected to possess proficiency in agriculture, in raising of fruit-trees, bees, and silk-worms; proficiency in manufactures and book-keeping, in gymnastics and military exercises, even in surveying, as has been mentioned before; in short he is expected to possess so many accomplishments that they are scarcely attainable and scarcely in harmony with his humble position. There is a two-fold danger in all this: either the ablest young men try at once to obtain employment in higher positions, and then the object of training them is lost; or they feel unhappy in their humble position, unless other opportunities are offered to them which allow them to make use of their accomplishments; for most young men must teach the youngest classes for at least ten years, and many succeed in obtaining a position which occupies the faculties of a man, only at a time when the fires of youth begin to go down and old age begins to make itself felt. A plan has, therefore, been suggested, to divide the candidates into two classes, in order to provide a more extended instruction for head-masters, and, on the other hand, to educate a class of contented teachers for the ordinary schools.

The same considerations hold good for all branches of the public service. Much is done to develop the intellect for government service; but the working powers thus produced can not be properly employed during the best part of life; they have lost a great deal of their original intensity when they are employed at last. It was, therefore, very proper, when the teachers joined the motto "more work" to their motto "better pay." Both mottoes are justified; but the former would even be the more worthy of attention, if it should at last appear that the number of teachers which the law requires can not be had. Public opinion is certainly still unsettled, but the opinion is here and there expressed that the prosperity of the public school does not so much depend on the number as the quality of teachers, and that the work of instruction would be better done with a few better paid and better qualified teachers.

A frequent theme of public discussion is the hygienic condition of schools. There is no want of regulations about ventilation, attention to the eyes, &c., and it is a rule that the school-room must at least be ten feet high and allow eight square feet for each child. But the compulsory attendance at school renders it necessary to receive a greater number of children, and the school-houses, built at a time when the families themselves were contented with very little space, reflect the general idea of comfort of the time when they were erected; where the former improved, the latter had the benefit. Teachers and physicians have of late

established rules, to be observed in all new buildings and wherever repairs on a larger scale have been ordered, so that the children will be more comfortable and the rooms larger.

There is one more point that has attracted the attention of the teachers, the press, and the legislature. It is the official position the clergymen hold as superintendents and administrators of schools, which is very erroneously called the subordination of the school to the church. Such subordination does not exist in Wurtemberg, either by the letter or the spirit of the law. The law calls the services of the clergy into requisition, and the constant local supervision is the necessary consequence of the compulsory attendance at school. For he who is compelled to send his child to school has more right to be assured that the instruction will be properly given and moral order maintained, than he who chooses a teacher himself; this is the reason why private institutions are not subject to the same regular control. The clergymen are, moreover, attached to the school as teachers of religion, and represent its and the teachers' interests in the local board. It is for this reason and because there are no other persons who can be intrusted with the inspection, that the legislature has confirmed the arrangement in all its essential features, but has also taken care that the teachers should have their proper share in the administration. Many teachers are discontented with this arrangement, claiming that the teachers alone possess the technical and scientific qualifications; the press, too, speaks against the influence of clergymen in school matters, but then that press is also opposed to the church. The present system will certainly last some time longer and bear good fruit, when ministers and schoolmasters work honestly and kindly together; it will continue to 'do so as long as the people do not split into a multitude of denominations, but remain in the present two great churches, and as long as the liberty of conscience is not in danger. The old tie connecting church and school should only then be severed by the government when the clergy should abuse their connection with the school, and when they should prove incapable of satisfying the just demands which public life makes on public instruction. The ministers themselves might wish to be relieved of that labor, either when the demands of the school should be increased to such a degree that an honest man could no longer perform the duties, or when the law should force a spirit into the school which would be hostile to the church and Christianity. The separation of the ancient connection between church and school is, however, going on gradually, and it is a natural consequence of this process that the ministers, as such, can, in time to come, no longer officially perform the duties as functionaries of the State or of the community, at public schools. When this shall take place, much will depend on the active interest the communities will take in schools and education, showing ability and willingness to take the government of the local schools in their firm hands and to relieve the department of a very large portion of its responsibilities.

PUBLIC INSTRUCTION IN WURTEMBERG.

I. ELEMENTARY SCHOOLS.

1. *Organisation and Administration.*—The highest authority in matters pertaining to elementary schools, as well as to public instruction generally, is vested in the ministry of education and the affairs of the church, and in the privy council of education, which is a part of the ministry. Under the ministry, the general supervision of the Protestant schools is exercised by the Evangelical consistory; and that of the Catholic schools, by the Catholic church-council.

The Evangelical consistory is composed of clerical delegates, appointed by the king, and six general superintendents, (one for each province of the kingdom, who together form an Evangelical synod,) which meets annually for the purpose of deliberating on the affairs of the Protestant schools, and receiving the reports of the general superintendents on their school-visitations. The establishment of new or the suspension of existing schools, the creation of school-districts, the forms of examination, the grants of aid from the State, confirmation or suspension of teachers, the increase of their salaries, the additional remuneration for special good services or pensions, and, generally, the administration of the school-funds, belong to this class of school-officers.

The Catholic church-council has similar powers and duties over the Catholic schools. For the administration of Jewish schools, a special commission, so far as regards the examination of teachers and choristers, is formed, under the direction of the ministry, from the other superior authorities, to which the Rabbis of the Israelite church are admitted as members.

The general superintendents are the representatives of the superior authority in the provinces, who determine the limits of school-districts, the schools of each of which are under the supervision of an inspector, who is usually the oldest clergyman of the district. They are required to visit and inspect the schools, and report on their condition to the general superintendent. The highest school-authority and the inspector for the district constitute a council for deliberating on the interests of education in each district.

The districts are subdivided into school-communes, the officers of which are the pastors of the town, and two or more citizens elected by ballot for three years by the communes, one or three of whom must be teachers.

2. *Attendance.*—The attendance of all children between seven and fourteen years of age has been made obligatory since November, 1858; and they must continue in school two or three years longer, unless their examination at the close of their fourteenth year proves satisfactory. Children are still obliged, although they have left the primary-school, to attend the Sunday repetition-school until they are eighteen, unless they are members of some higher school. Where there is but one school, children of a different religious confession from the majority may attend

the nearest school of their own denomination, if the distance is not too great; otherwise they must attend the school in their own parish.

A list of the children of school age is prepared by the civil authority, and furnished to the teacher of every school, who is required to note every instance of tardiness or absence of any pupil thus registered. For the first absence, parents are warned; and for a repeated absence, a fine, fixed by the law of 1824, of from three to six florins, (from \$1.20 to \$2.40,) must be paid, or they must suffer imprisonment from twenty-four to forty-eight hours.

3. *School-houses.*—Every village or neighborhood numbering thirty families, must have a primary-school building, spacious, well floored, and well lighted, and with convenient seats and desks. Each building is intended to accommodate from seventy to eighty pupils, besides containing three or four rooms for the family of the teacher. By a decree issued December 6th, 1791, in addition to the instruction of the schools, every school is required to be furnished with a library, containing select works adapted to the wants of country people.

4. *Studies.*—The primary-schools, whether for Protestant, Catholic, or Jewish children, have the same programme and methods of secular instruction; the religious instruction conforms to the formulas of the respective denominations. In all the schools the branches taught are religion and morals, reading, writing, and arithmetic, with the German language and singing. To these are added, in the more advanced schools, sacred history, geography, natural history, the elements of physics, meteorology, agriculture, hygiene, and gymnastics. A programme of studies from year to year, for each year, from the seventh to the fourteenth, is prescribed by law. Special attention is given to drawing, children beginning when eight years of age to draw from models, and more than four hundred special drawing-schools have been established in the larger towns. Every two years a general exposition of the products in drawing by the pupils in these schools, is held, at which premiums are given for excellence.

5. *Support of Schools.*—The support of the primary-schools is mainly defrayed by the commune. Tuition fees, which are fixed by the school-inspector, belong to the commune, and are collected by its officers. Every Protestant child, on the day of its confirmation in church, and every Catholic child, on the day of its first communion, makes a contribution in money, in proportion to the means of its parents, for the support of the school. All fines for absence from school also go towards its support. The poorer communes, not able to pay their teacher or build their school-house, are aided by the State.

6. *Teachers.*—Candidates for the profession of teaching must give notice of their desire and intention before they are sixteen years of age, and must shape their studies for two years in reference to entering one of the Teachers' Seminaries soon after their seventeenth year. The seminary course lasts two years, tuition is free, and an allowance for board

PUBLIC INSTRUCTION IN THE FREE CITIES OF GERMANY.

I. HISTORY. POPULATION. GOVERNMENT.

THE "FREE HANSEATIC CITIES," Frankfort on the Main, Hamburg, Bremen, and Lübeck, formed a union in 1815, by which they became a corporate member of the German Confederacy, with one joint vote in the diet. This union is the sole remnant of the famous "Hanseatic League" which, first entered into by Hamburg and Lübeck in 1241, for mutual safety and the protection of their trade, was extended to embrace all the principal cities between Holland and Livonia, and was for many years the undisputed mistress of the Baltic and German Ocean. After the 15th century the power and influence of the League gradually declined, until in 1630 it was dissolved, Hamburg, Bremen, and Lübeck alone remaining faithful to their ancient alliance.

As "free cities" they are also remnants of the once numerous Imperial cities, which were not subject to any superior lord but were immediately under the empire, possessing various privileges and distinctions granted by the emperors or obtained by purchase.

HAMBURG is the largest of these cities and the capital of a small republic of an area of 135 square miles, consisting of two distinct territories, one of which is the joint property of Lübeck. Its population in 1860 was 280,000—176,000 belonging to the city and its suburbs, of whom 10,000 are Jews. Hamburg ranks as the greatest emporium of trade on the continent, and, next to London, has the largest money exchange transactions in Europe. It is also one of the principal ports for transatlantic emigration, and the center of a very extensive business in marine insurance. The government is in the hands of a moneyed aristocracy, the sovereign power being exercised by a senate of eighteen members, and a legislative body of 192 members. The latter body elect the senators for life, who annually elect a president from their own number.

FRANKFORT possesses a small territory of about thirty-nine square miles, with a population in 1861 of about 87,500. It is one of the most ancient cities of Germany, and from its position has from an early period been the commercial and political center of the nation. It derives great wealth from its banking transactions. The government is vested in the senate, with four syndics, twenty-one members, and two presidents, elected by the citizens; the legislative chamber is composed of fifty-seven members, and the highest court of appeal is, as is also true of Hamburg, the supreme tribunal at Lübeck.

BREMEN possesses an area of 112 square miles, with a total population in 1862 of 98,500, of which 67,000 belonged to the city itself, 6,500 to Bremerhaven, and 4,000 to Vegesack. It carries on an extensive commerce, especially with the United States, and is an exceedingly thriving place, its trade having more than doubled in ten years. The territory includes, besides the main port at Bremerhaven, two market towns and about sixty villages. The government is intrusted to a senate composed of four burgomasters, two syndics, and twenty-four councilors, and to a convention of resident burghers.

LUBECK, nominally the chief of the Hanse towns, has an area of 142 square miles, consisting of ten isolated portions, and including a population of 50,614. It is still a thriving commercial town, though by no means so prosperous and important as formerly. The government is vested in a Senate of fourteen members, and an Assembly of 120 members.

II. GENERAL HISTORY OF EDUCATION.

In the FREE CITIES, as in all the older cities of Germany, and indeed of Europe, the earliest schools were formed in connection with the convents and cathedrals—they were of the church and for the church—and so continued for centuries. Of the three schools at Frankfort, the earliest was that attached to the collegiate church of St. Bartholomew, whose origin dates in the earliest times of the Carolingians, at least, in the reign of Louis the Germanic, early in the ninth century. The others, connected with the churches of Our Blessed Lady upon the Mountain and of St. Leonard, were probably commenced early in the fourteenth century. The origin of the cathedral schools of Hamburg and Bremen may be credited to the activity of the noted Ansgar, or Anscharius, apostolic legate and afterwards bishop of Hamburg, who is known to have previously superintended the Benedictine convent school at Corvey, from which the first teachers for these schools were brought. The date of the school at Hamburg is fixed at 884—of the one at Bremen, somewhat earlier. The school at Lübeck was probably founded in 1168, when Bishop Gerold of Oldenburg removed his bishopric and established the cathedral there. The Hamburg church and school were several times destroyed—in 840 by the Normans, in 1012 by the Wenden, and in 1072 by the Slaves—and they were yet again rebuilt in the 13th century; they have continued in existence together until the beginning of the present century, when the cathedral, being very much out of repair, was torn down and the school ceased. A list of the scholastics at the head of this school is preserved, extending from 1212 to 1806, when its last scholastic, John Julius Palm, died.

In respect to the organization of these schools, a distinction is to be made between the lower, "exterior" school, from which probably grew the public school and the gymnasium, and the higher interior, or "domiciliary" school, which was designed especially for the training of ecclesiastics. The latter was in charge of the "scholasticus," whose duty it

was "to give faithful instruction in the scholastic sciences, and especially in grammar." The lower division was an elementary boys' school (trivial school) under the direction of the "rector scholarum" or "magister scholarum," also known as "ludi magister," who was appointed by the scholasticus and sometimes paid by him. When afterwards the domiciliary school declined and with it the efficiency of the scholasticus as an instructor, he seems to have acted merely as a superintendent of the school and to have been chiefly occupied with the management of the business of the chapter, of which he was usually one of the prelates. The office was well endowed and consequently much sought after, and was sometimes conferred upon persons who were not members of the chapter. Hence by degrees, in later times, the rector scholarum became the only teacher, appeared on festive occasions at the head of the school, and gave instruction in the higher as well as the lower branches. He also had his assistants (called "loca tenentes," "locati," "socii," "collaboratores," or "substituti,") selected by the rector and paid from his own income. The tuition fees were at first very light (at Hamburg 100 pfennings, or 18 cents; at Lübeck 2-4 schillings, or 4-9 cents, annually) and for the poorer classes were diminished, or remitted entirely. These rates were increased with the depreciation in the value of money. Many endowments were made for the benefit of the scholars, poor scholars were provided for by the legate and others, and there was no want of feast days (See Grimm's description of the Gregory Feast, in the "Kind- und Hausmärchen," II., XXXII.) In these schools, instruction was limited almost entirely to the Latin language and religion; in German there seems to have been very little instruction given, and in Greek and Hebrew, none at all. Reading and writing were taught in order to exclude the establishment of other schools, and singing received especial attention on account of its importance in the church service. For a still higher theological education, "lectures" were established and endowed, readers being appointed who read the scriptures and explained the more difficult passages, and by degrees became the exponents of the sciences to the convents and chapters, and these places were often filled by learned men called in from other States. These lectures have continued in Lübeck to the present time and have been transferred for the essential purpose for which they were created, the instruction of the younger theological classes, to the use of the Protestant churches. After the establishment of the university at Mentz, the domiciliary school at Frankfort declined, the inferior school alone remaining.

Another institution that has survived till the present time which originated in connection with the Hamburg church and school, is the "Fraternity of Poor Scholars," founded about 1285 for the decent burial of poor or stranger priests, clerks, and students.

At length, in the 14th century, arose what we are used to call the revival of classical study. Commencing in Italy, Rudolf Agricola was the first mentioned representative of the new tendency in Germany, though Erasmus attained the greatest renown in his defense of humanism. The youth applied themselves with enthusiasm to the study of the classics

the opposition of the Dominicans was ineffectual; and the followers of the new movement, usually called "poetæ," turned their energies to the instruction of youth. In 1496 there came a "poet" to Frankfort and offered for the purpose of supporting himself, to "give poetical readings to the young for a quarter of a year," for which he received two guilders monthly.

Thus commenced the radical movement in the city of Frankfort; but it was not merely this reaction against scholasticism, which wrought upon the school system. As the condition of the citizens had gradually improved, the desire for education also increased and the existing schools gave the less satisfaction. As they could not gain control over the church schools, the magistrates and citizens sought to establish others, which the clergy, on the other hand, used all their power to prevent, or at least to bring under their own supervision and confine to as low a grade as possible. In 1253 the city of Lübeck obtained permission from the pope to establish a special city school, and also Hamburg in 1281. These schools gave rise to frequent and bitter quarrels between the clergy and the magistrates, the chapters refused to recognize the grants until the schools were made subordinate and tributary to the scholasticus, and the contention did not cease between the parties till the time of the Reformation. This whole movement, indeed, in favor of popular education appears evidently not to have arisen in the church, but without and in opposition to the influence of the church. Thus in Hamburg, early in the 15th century, the scholasticus, ever anxiously solicitous about privileges and incomes, made complaint to the pope of the unlicensed schools that were drawing away scholars from the two privileged schools, which were therefore commanded to be closed under penalty of excommunication. A similar complaint was made in 1472, but the like commands met with much less ready obedience. The city council sustained the secular schools and after repeated appeals which were uniformly decided in favor of the scholasticus, the council finally relieved itself from the ban of excommunication by an agreement of indemnification to the scholasticus and that there should be but a single school of forty scholars for instruction in German, reading and writing. In Lübeck too, the four German reading, and writing schools were founded only after long contention between the chapter and the council; and in Bremen, excommunication alone forced the council to yield to the terms of the church.

With the Reformation, which was introduced into Bremen in 1522, Hamburg in 1529, and Lübeck in 1531, advancement was more rapid. In Hamburg a new classical school was opened by Bugenhagen in 1529 in the convent of St. John, hence known as the Johanneum, and the Nicolai school of 1281 was changed into an evangelical public school. At Lübeck, the chapter schools were closed, and a new classical school, the Catharineum, was founded by Bugenhagen in 1531. Reading and writing schools were also multiplied, and even female schools were contemplated but do not appear to have gone into operation. At Frankfort, in 1521, a number of prominent families wishing to establish a new school,

applied to Erasmus who recommended to them his scholar, William Nesen, who founded there the "Junker school"—the miserable commencement of the Frankfort gymnasium. It was at first but a private school and though there was no want of scholars, yet for want of sufficient support from the city council, Nesen left at the end of three years, and was succeeded by Ludwig Carinus, who likewise remained scarcely three years. Jacob Molyer followed, better known as Micyllus, and one of the most able educationists of the 16th century. He remained until 1582 under the same unfavorable circumstances as his predecessors, with a salary of about fifty florins (\$21.) In 1587 he was recalled from his position as professor at Heidelberg, through the influence of Melancthon and with the determination to improve the condition of the school. His salary was raised to 150 florins, and a school ordinance was passed whose peculiar merit lay in an unusual regard for the practical objects of instruction. The school was divided into five classes and the assistant teachers were paid by a tuition fee of four florins annually. This institution was long called the "Barefooted school," from being held in the convent previously occupied by the order of barefooted friars.

While the cathedral schools at Frankfort were thus being supplanted, other schools also arose as the commencement of the common school—the German reading and writing schools, called also briefly "German schools." The first teacher of whom mention is made, was Jacob Medebach, in 1548, a cobbler; but by the end of the century there were at least eighteen such. Small claim, indeed, was made upon their learning; knowledge of the catechism, ability to read and write, and the capacity to maintain discipline by means of the rod, were qualifications amply sufficient. The authorities troubled themselves little about these schools, so that various abuses arose, and among others that the children were transferred from one school to another for the purpose of defrauding the teacher. Hence, in 1591, the teachers met and agreed upon certain general regulations respecting the time of admission to school, and the amount of tuition fee (12–18 schillings quarterly=15–21 cents, exclusive of arithmetic,) and requiring each scholar on admission to produce the receipt of his former teacher. The city council also in the same year required the visitation of the schools by the preachers, regulated begging by poor scholars, and limited the tuition fees to one florin a year, or to twice that amount for wealthier children. Thus the school teachers were formed into a "guild," and were recognized as such; they had an elected head and a common treasury, they met quarterly in convention, and at a later period had also a widows' fund. But these "quarter" schools also were not without their quarrels, which arose principally from the religious differences between the Lutherans and Calvinists, and still another difficulty arose from the unlicensed or "hedge" schools, which was finally removed for a time by a city regulation that no school could be opened without permission from the authorities.

In this form the Frankfort school system remained, in all essential points unchanged till the re-organization of Frankfort as a free city in 1815. During this time the number of teachers varied from sixteen to thirty-two, each school being limited to a single assistant and hence restricted to a moderate number of scholars. The schools were sometimes under the charge of female teachers, which is explained by the fact that the school privilege was a real right, transferable by inheritance or sale. The course of study was probably extended so as even sometimes to include French, but there were special charges for instruction in all branches beyond the elementary ones of reading and writing.

That this arrangement, as carried out, was by no means satisfactory, is evident from a reform document by one of the teachers, J. M. Schirmer, in the middle of the 18th century. He proposed that the number of schools should be limited, the teachers paid by the State, a revival of the regulation requiring visitation of the schools, and that all teacherships should be made hereditary. He was especially opposed to the numerous "hedge" schools which had again arisen, kept by "school disturbers" and various kinds of strollers, "lackeys, tailors, shoemakers, stocking weavers, wig makers, journeymen printers, invalid soldiers, and sewing and knitting women," who managed to gain a subsistence by means of instruction in German and the catechism. But his criticism met with slight response and no attempt at a re-organization was made until within the present century, when a great improvement in the schools was inaugurated through the active exertions of the mayor Baron von Gunderode and Dr. Hufnagel, Sr., by whom the new "Model School" was founded in 1808. In 1804 was founded the Jewish school, the "Philanthropin;" in 1813, the "White Lady's School," the first purely State common school; in 1816, the German Reformed Free School, and the female school of the Ladies' Society. During these changes the quarter schools had gradually diminished in number, and in 1824 they were wholly displaced by the formation of four evangelical common schools, to which were added in 1857 a higher burgher school.

Of the early Catholic schools at Frankfort, the cathedral school of St. Bartholomew was the only one which survived the Reformation, which was only for boys and under the charge of the rector and a single assistant. As the number of Catholics afterwards increased, some English nuns from Fulda were permitted to commence a female school, and still later the Rosenberg nuns established a similar school for pupils from the wealthier families. In 1783 a real school was added to the trivial school of the cathedral, and in 1790 the Catholic gymnasium, the "Fridericianum," was founded. In 1808 the school of the Rosenberg nuns was changed to a common school, and the hitherto public school of the English nuns, to a female high school. In 1812 the cathedral gymnasium and the Fridericianum were formed into one grand-ducal gymnasium common to all religions, leaving nothing but the real division as a special Catholic real school, which was also dissolved two years

later, while an additional class was added to the elementary classes of the cathedral school. This newly formed class was in 1816 organized into the still existing "Select School."

From this imperfect historical sketch of the schools of the Free Cities, we pass to a view of the existing condition of the institutions of each city.

III. PRESENT SCHOOL SYSTEMS.

1. *Frankfort on the Main.*

The schools of Frankfort are under the direction of four coördinate *school authorities*, viz: 1. The "Evangelical Lutheran Consistory," under which are the gymnasiums and the country schools. 2. The "United Evangelical Protestant Consistories," consisting of members of the Lutheran and Reformed consistories, and acting as school authority for the schools of the Evangelical Protestant parishes (the burgher high school and the four burgher schools,) and also as supervising authority for the model school. 3. The "Catholic Church and School Committee," consisting of two Catholic senators, a city priest, one of the church directors, and a well informed layman, for the four Catholic schools. 4. The "Mixed Church and School Committee," consisting of deputies from the consistories and the Catholic committee, for the Jewish schools and private schools generally. There is also an intermediate authority for schools of the Evangelical Protestant parishes, as "Board of Inspectors," selected from the united consistories, and having the supervision of the individual schools, while the external business (the collection of the tuition, payment of salaries, care of the buildings and furniture, &c.,) is conducted by a "Board of Deputies," which delegates a member to each school. The affairs of the Catholic schools are similarly conducted. The immediate oversight of the affairs of the model school belongs to a special permanent board, which itself fills any vacancy in its numbers. The Jewish schools are under the immediate charge of a school council, chosen from the parish, while the country schools have in each district a local school committee, presided over by the pastor.

The *Gymnasium* has eight classes and an average of 100 pupils, composed equally of Catholics and Protestants, with special instruction for the Catholic children in religion and history. The corps of instructors includes the director, eleven professors, and seven teachers, and has numbered many able men—Buttmann, Schlosser, Weber, Ritter, Herling, &c. The course continues ten years—tuition fee sixty florins.

The *Model School* has nine male and seven female classes of one year's course each—the lower department elementary; the higher, organized as a real school, without instruction in Latin, and a female high school. It is exclusively Protestant and averages 600 pupils. Besides the director, it has fourteen regular teachers, eleven special teachers, and two female teachers. Tuition, fifty florins.

The *Burgher High School*—a real and female high school—has eight male and seven female classes, with a two years' course for each higher

class. The plan of study is usually realistic, including Latin instruction. The attendance averages 740—tuition, twenty-five florins. The instructors are a director, fourteen regular teachers, eight assistant and special teachers, and three female teachers.

The four *Burgher Schools*, organized as city common schools, exclusively Protestant, each with four male and four female classes, and an eight years' course. There are at each school a principal, eight male and three female teachers. Total attendance, 2,280, of whom 1,664 are free pupils. Tuition, eight florins.

The *Catholic Select School* is a pro-gymnasium and real school with four classes and an eight years' course; religious instruction not obligatory upon Protestants. Eight teachers; 140 pupils; tuition, thirty florins. The *Cathedral School* is an advanced common school for boys, with four classes, seven teachers, and 850 pupils. Tuition, ten florins. The *English Nuns' School* is a female high school, with four classes, six teachers, and 100 pupils. Tuition, thirty florins. The *Female Common School* (of the Rosenberg nuns,) has four classes, six teachers, and 310 scholars. Tuition, ten florins.

The *Jewish Burgher and Real School* consists of two mixed elementary classes, and eight male and five female classes. The male department is a real school, without Latin instruction. It has twenty-one teachers, and 650 scholars. Tuition, 24–66 florins. The *School of the Jews' Religious Society* is also an elementary, real, and female high school, with two elementary, six male, and four female classes, thirteen teachers, and 240 pupils. Tuition, 24–54 florins.

The "Society for the advancement of Useful Knowledge" has founded several institutions—a *Sunday and Evening School*, and a higher *Model School*. The latter receives 1,500 florins from the city, has four classes, eight teachers, and 110 pupils. The higher class corresponds somewhat to the upper class of a real school or to the preparatory classes of a polytechnic school.

There may also be mentioned the school of the Orphan House, the Ladies' Society's School, the Institution for the Deaf and Dumb, and the Institution for Medical Gymnastics and Orthopedics, besides infant schools and forty-four private institutions.

In the eight country districts of Frankfort there are also well-arranged schools, those in the larger villages having each several teachers.

On the whole, therefore, the schools of Frankfort are in a very flourishing condition, and in financial respects their position is especially gratifying, for more has been done here than in any other city for securing to the teachers sufficient salaries. The director of the gymnasium receives 4,000 florins (\$1,660) besides house-rent; and the professors, 2,000 fl.; the director of the Model school, 2,400 fl., &c.; while the regular teachers receive from 800 to 1,600 fl. according to their time of service. Much also has been expended upon school buildings, apparatus, gymnasial halls, &c. On the other hand, only the regular teachers of the gymnasium and of the select school, and the directors of the public

schools, rank as State officials of the first class, in respect of pensions and dismissal from service; other regular teachers having like privileges only after twelve years of service. But the greatest evil lies in the great complexity of the present system of administration. Many attempts have been made to remedy it, but it is rendered almost impossible by the terms and restrictions of the constitution. Until these difficulties are removed and a thorough administrative reform carried into operation, the most generous outlay of means will not effect correspondingly favorable results.

2. Bremen.

Of the remaining Free Cities the same is true, in many respects, that has been said in general of Frankfort—while there is a zealous interest in the cause of education and a strong attachment to the older institutions, there is also much of imperfection, especially in matters of organization and administration. The higher school system is essentially the same with the gymnasial system of the rest of Germany; the schools are well endowed, and have always been fortunate in procuring and retaining the services of men of eminent talents. But in the burgher and elementary school system there are still wanting clear lines of demarkation, both to separate distinctly between the public and private schools, and to define the relations of the churches and the schools. Too little attention also has been paid to the training of teachers.

The *higher and private schools* of Bremen included in 1856 the following institutions:—1. The Head School, consisting of the gymnasium, founded in 1584, reorganized in 1794, enlarged in 1817, and again reorganized in 1858—with six classes, eleven teachers, and 117 scholars; the Commercial School, with nine classes, fifteen teachers, and 227 scholars; and the Preparatory School, with three classes, twelve teachers, and 278 scholars. 2. Six private schools, preparatory to the Head School and the burgher schools, with 866 scholars. 3. Four private burgher and real schools, with about 555 pupils. 4. Nine higher female schools, private institutions, with 648 pupils. 5. Fifteen elementary schools for children of the higher classes, with 627 pupils.

The *public schools* include nine parish schools, under committees composed of the pastor and members of the parish, usually of four classes, the sexes separate only in the higher class. The number of scholars in 1858 was 2,989; the city appropriation 10,000 gold thalers. There are also nine free schools supported by the city, and each with three or four classes. Number of scholars, 2,062, who receive, in addition, books and writing materials. Besides these there are twenty-four licensed schools, with 2,118 pupils, conducted mostly by females—some of these are assisted by the city; two Ladies' Society's schools, with 78 pupils; and five rescue institutions for children.

Since 1858 there has existed a fully organized *Teachers' Seminary*, with three classes. The director receives a salary of 1,000 gold thalers; the

first teacher, 800 thalers; the remainder are paid at the rate of 100 thalers for each four hours of weekly service.

Bremen possesses also twenty-four *country and village schools*, some of which are very much over-crowded. Religious instruction is given by the pastor from 8 A. M. till 2 P. M. on Monday and Thursday, from 10 A. M. till 2 P. M. on Tuesday and Friday, and from 6 till 11 A. M. on Wednesday—which leaves little time for any other instruction. Through the great want of teachers, boys scarcely grown are engaged in some of these schools as assistant teachers.*

All these schools are under the supervision of the "scholarchates," who are senators; there are also a parish school council and board of deputies for the several schools.

3. *Hamburg.*

The *Gymnasial Academy* at Hamburg, (created in 1618, with five professors of philology, philosophy, and Biblical philology, mathematics and physics, history, and natural philosophy,) has a position between the gymnasium and the university, and is designed to afford a general scientific training. Our information respecting its condition is imperfect. The gymnasium Johanneum has six classes, sixteen teachers, and 186 pupils. The real school, attached to it, has seven classes, nineteen teachers, seven assistants, and 352 pupils. In this gymnasium is located the public library, with its 5,000 MSS. and 200,000 volumes.

The burgher, female, and public schools are in much the same condition as those of Bremen, except that little has been done towards the training of teachers. The best and most flourishing schools for burgher instruction are for the most part wholly private institutions, (among them, Busch's School of Commerce, founded in 1767,) while there are numerous very inferior private schools. The number of scholars in the poor schools in 1857 was 4,360; the seven Infant schools (called "Belfry Schools,") number 848 children; Kindergartens are received with favor; and at Horn, three miles from the city, is located the famous "Rauhe Haus" of Wichern, founded in 1833 for depraved and abandoned children.

4. *Lübeck.*

At the head of the Lübeck school system stands the *Catharinæum*, a gymnasium and real school under the same director. This school numbers five gymnasial classes with 128 pupils, four real classes with 111 pupils, and three preparatory classes with 82 pupils, and a total of nineteen teachers. In marked contrast to this noted institution, which has been presided over by such scientific and learned men as Weber, Jacob, and Classen, stands the burgher and public school system, distinguished by its irregularities and ill-timed peculiarities arising from local differ-

* In 1861 a *Course of Study for the Country Schools* was prepared by the director of the Teachers' Seminary and submitted to the Senate Committee, which, if carried out, will effect a great reform in these schools.

There still remains to be mentioned the "Burgher School," in Stuttgart, instituted in 1863, by the commune, but under the superintendence of the Ministerial Bureau for Higher Instruction. Its general aim and course, also, is the same as that of the real-school, with this exception, that French is an optional subject, which is commenced in class V with scholars 11 years of age, and is pursued by about half the school. This institution, in 1869, numbered 426 scholars in 9 classes, with 9 teachers. The school-fees vary from 8-12 florins, with an extra charge of 4 florins for French. Private munificence has provided free places for 16-18 scholars. The number of lessons per week varies from 22-28. The teachers are examined as real-school teachers, and are appointed by the government.

4. *Education and Examination of Teachers.*—Prior to 1798, and practically down to 1829, the teachers of secondary schools were graduates of the theological seminaries and the University, in which there existed no special courses for future teachers. In 1828, competitive examination was introduced, but failed to accomplish its object for want of definiteness as to the subjects and modes, and of any large and immediate inducement. The modifications of 1850 and 1853 supplied these defects, and those of 1865, providing a new examination for philological teachers, and those of 1866, regulating the examination of theological students in Tübingen, have settled the system as follows: (1.) A philological seminary exists at Tübingen, and pedagogical instruction is given at the theological seminaries by eminent teachers. (2.) Competitive examinations are held twice a year for vacancies in the chief and subordinate situations in the secondary schools. (3.) The examining board is composed of professors of the University, and prominent gymnasial teachers. (4.) The examinations for second grades of position, are held separate and with different requirements, and on the different subjects—may be held at different periods by the same candidate—the philological at one, and the scientific at another. (5.) No candidate can be admitted to the examination without the diploma of the University, and the certificate of the theological seminary, with special exceptions for subordinate positions, and for the real-schools. If the vacancy is for a professor's chair (head-master of the first class, gymnasium,) the candidate must submit a Latin essay on a theme set by the examiners. Students of Protestant theology as well as Catholic theology, at the William College, are exempted from certain requirements if they show aptness and seem to devote themselves to teaching. (6.) The examinations are both written and oral. The subjects are obligatory and optional, and the extent, and authors which must be read, are specified. For the *preceptor's* place: Classical philology, German and French, arithmetic, geography, history, religion (for non-theologians;) the following are optional: Algebra, geometry, and singing. For the *professor's* place, the examination goes deeper, and includes, also, physics, and the literature of German and French, English, Hebrew. Both classes of candidates must give a trial

lesson. (7.) In according the certificates, the greatest weight is attached to classical philology and the trial lessons.

The rules and regulations of the Philological Seminary were revised in 1867, when provision was made for a separate library, and students were strongly urged to become thoroughly acquainted with German and French.

For teacher in the lowest classes of the real and Latin schools (*Collaboratoren*), there is an examination, established July 20, 1864, in which a distinction is made between them and the elementary teachers, (with pupils preparing for the secondary,) who do not instruct in any foreign language. The last are required to pass the common elementary teachers' examination, and the former must pass on the following subjects: Bible, history, geography of Palestine, penmanship, German composition, elements of history, geography, natural history and arithmetic; Latin, (if they are to be employed in Latin schools,) French, (if in real schools); *optional*: planimetry, drawing, and singing.

5. *Legal, financial, and social position of teachers generally.*—The government having provided this elaborate examination apparatus, to support competent teachers, labored at the same time to improve their position. The first attempt, in 1793, accomplished little. In 1806, the "Supreme Board of Studies" was intrusted with the supervision of the elementary schools, and the University, while the secondary schools remained under the superintendence of the church authorities till 1817, when they came under the former board, which was changed, and designated a "Council of Studies" (*Studienrath*.) The teachers of these schools were always considered as belonging to the clerical profession, and aspired to join the clergymen's widows' fund. In consequence of their number being increased on the establishment of real schools, which were less clearly connected with the church, some legislation became necessary to regulate their position. By a resolution of July 6, 1842, they were divided into two grades. The first, teachers of the higher classes (scholars of over 14 years), were placed on nearly the same footing of other government officers, except in their claim to a pension, which was fixed at 700 florins, and their widows at 80 florins. The second grade, teachers of the lower classes (scholars between the ages of 6 and 14), fared even worse. In spite of the appeals to the public and the government, it was only after the revolutionary movements of 1848, that teachers of the first grade were placed, in regard to pensions, on a level with other government officials, by a resolution of September 7, 1849. The law of April 4, 1861, raised the widows' pension, of teachers of the second grade, to 120 and 150 florins, which, by another law, (July 16, 1868,) was increased one-third, thus satisfying all just demands.

Prior to 1848 the salary of secondary school-teachers amounted to 600 florins with free residence; and of the teachers of lower classes to 250–500 florins. All these places were, in 1858, improved by an increase of 50–200 florins, with this provision, that this additional sum was paid entirely out of the government funds to the teachers of the higher classes,

whilst to the teachers of the lower classes one-half of this increase was charged on the communes, which in many cases were neither able nor willing to pay the same. In 1864 another increase of fifty florins was granted to teachers of all grades, payable in the same way. Of late the salaries have been again raised, but in such a manner as to distinguish between those employed at larger institutions and those at smaller institutions. A sum of 5,000 florins is annually appropriated, which is distributed in 25 shares of 100 florins each, and 50 shares of 50 florins, according to the length of time they have been in service. In 1867, 75 teachers out of a total number of 186 enjoyed the benefit of this fund.

The salary of teachers at the smaller Latin and real-schools will be increased every five years by 25 florins, till it reach 700 florins; that of the *collaboratoren* is in the same manner to be raised to 725 florins; and that of the "*preceptors*" and larger real-school teachers to 1,000 florins. The salary of teachers at the gymnasia is somewhat higher, varying for teachers in the lower classes from 800 to 1,450 florins, for those in higher classes from 1,200 to 2,000. Although much has thus been done to improve the financial position of teachers, the increase does not exceed the constant increase in the price of all necessities of life.

Before considering the civil position of the teachers as officials, it will be necessary to recall that the government superintendence of schools was separated from the other branches of the administration by the establishment of a special Ministry of Public Instruction in 1805, at the head of which the famous historian Spittler was placed. Till 1848 this Ministry was associated with the Ministry of the Interior, but in that year it received its present independent organization. Next to the Ministry stands a central board, at first called *Oberstudiendirection*, and since 1817 *Studienrath*, but in 1866 changed to a Ministerial Bureau of Classical and Real-schools, (*Ministerial abtheilung für Gelehrten und Realschulen*.)

The distinction between the different classes of teachers, marked by the different authorities to which they belong, and the different salaries paid, shows itself in the separate conferences which each class of teachers hold among themselves, only occasionally uniting for the purpose of a general conference. These conferences, although entirely voluntary, are indicative of a certain class spirit. At these conferences, discussions and essays on didactic, pedagogic, disciplinary, and financial questions are in order.

There is published at Stuttgart a pedagogical journal, liberally subsidized by the government, (*Correspondenzblatt für Gelehrten und Realschulen*,) which may be considered as the Wurtemberg organ for this class of teachers.

In the "classes of rank" (*Rang-ordnung*) of the different officers of the civil service, the teachers of the secondary schools have a more appropriate position since 1821. But even here a distinction is made, to the disadvantage of the teachers of higher real-schools, who rank some

degrees lower than those at the gymnasia. A similar distinction is made in their relations to the school authorities. The teachers of the Latin and real-schools in the country towns are all under the jurisdiction of the local school-board, which since 1822 is formed by the so-called "Church convention," (*Kirchenconvent*), consisting, under the presidency of the clergyman of the place, of the mayor, and one or more members of the communal council. This board has the immediate superintendence of these schools, receives the reports of the teachers, visits the schools, makes an annual report to the central authorities on their condition and the character and success of the teachers. The teachers may attend the sessions of this board, but legally they have no seat or vote, whilst the elementary teachers are *ex-officio* members. This local board does not report directly to the central authorities, but through the district board (*Bezirksamt*), composed of the *amtmann* (governor of the district) and the dean (*Decan*), the highest ecclesiastical dignitary of the district. The seminaries, lyceums and gymnasia, on the other hand, deal directly with the central authorities. A new resolution of January 20, 1868, grants the same privilege to the higher real-schools at Stuttgart and Ulm, but not to the other higher real-schools. With these few exceptions (Stuttgart and Ulm), the teachers of the real and Latin schools do not rank with those of the classical institutions, not only in their financial position, but as officers of the civil service.

Secondary Institutions of a Private Character.

Public schools of this grade are so numerous and good that there are only four private secondary schools in Wurtemberg, viz., Hayer's Institute at Stuttgart, with 159 scholars; Kornthal (a settlement of a peculiar ecclesiastical organization somewhat similar to the Moravians) Church School, with 86 scholars; the Salon near Ludwigsburg, with 95 scholars, and Dr. Klose's institution at Canstatt, with 40 scholars. The scholars in these institutions are prepared for the higher kinds of trades, for the higher Gymnasium classes or the lower Seminary classes, as also for the University, the Polytechnic School, and the Military Academy.

All private schools of this grade must at their establishment get a special permit from the Ministry, and are subject to the superintendence and inspection of the State authorities, viz., of the district board, and the ministerial Bureau for Classical and Real-schools. The directors of each must make an annual report, through the district board, of the number of teachers, scholars, and other statistics called for, and also statements as to the intellectual and moral character of the teachers; and forward any complaints made by pupils against teachers and directors. These schools receive no subsidy from the State funds, and their directors and teachers are at this time not obliged to pass a State examination.

The Maturity Examination.

The maturity or final examination is held twice annually, at Easter and in the Fall, by an examining committee composed of teachers of the different secondary schools in Stuttgart, under the superintendence of

the "Superior council of studies" (*oberstudien behörde*.) This examination was first introduced, (1809-1811.) to prevent poorly qualified candidates from resorting to the seminaries or University, to escape military service, from which such students were exempt. This maturity examination rightly carried out, should have exercised the same influence on the higher classes of the gymnasia, as the central examination (*Landexamen*.) did on the Latin schools; but as it was at first exceedingly lax, and as no limit as to age was presented, it exercised an unhealthy influence, and discouraged teachers and real scholars to see many unqualified candidates enter upon the academic studies. Between 1850-1854, therefore, the regulations were essentially altered: (1,) by limiting the age of admittance to the 18th year, completed; (2,) by excluding all candidates not recommended by the teachers at the gymnasium; (3,) by making this examination a test of the testimonials given by the teachers, and limiting the subjects to Latin, Greek or French, German, mathematics, and history; (4,) by adding geography and logic for those who had not gone through a regular gymnasial course. These conditions, and a firm and consistent administration have exercised a beneficial influence, both on the gymnasia, and the University. Besides this examination, another has been introduced at the end of the gymnasial course by two ministerial resolutions of July and August, 1868, to meet the requisition of the new military law, which required every man to serve in the army, but absolves graduates of the gymnasia, the real schools, and lyceums, who pass this examination, with honor, by one year's voluntary service. The same questions are sent annually at the end of the scholastic year, by the central authorities, to the directors of the various classical schools, and answered on one and the same day by all the pupils. The subjects are: Latin, Greek, (French for those who do not study Greek,) German compositions, algebra up to equations of the first degree, geometry as far as circles, history up to the end of West Roman empire. The oral part of the examination comprises translations from the Latin and Greek, (French for those who do not study Greek.) Those who pass the examination receive a certificate which entitles them to enter the army for the one year's voluntary service.

Similar regulations were made for the real-schools. The written examinations are on algebra to equations of the second degree, logarithms, planimetry complete, stereometry, and the most important portions of trigonometry, translation from German into French, German composition, history, geography, mathematical geography, special geography of Europe and North America, linear and freehand drawing. The oral examination comprises French, reading of German prose and poetry. In the place of stereometry and trigonometry, scholars may be examined in mercantile arithmetic, physics, chemistry, and English. Scholars who pass the examination receive a certificate by which they absolve the military requisition by one year's service, and which also enables the holder to enter the mathematical class of the polytechnic school.

III. STATISTICS.

1. *Attendance at school compared with the total population and the religious denominations.*

The total population of the kingdom of Wurtemberg on Dec. 3, 1867, amounted to 1,778,479, viz., 1,220,199 Protestants, 548,601 Catholics, 3,017 belonging to other denominations, and 11,662 Jews. During the scholastic year 1866-1867, the secondary schools of Wurtemberg were attended by 10,558 scholars, (one scholar to every 168 inhabitants.) Of these scholars, 8,476 were Protestants, 1,780 Catholics, 834 Jews, and 18 belonged to other religious denominations. It appears that secondary education is most sought for by the Jews and least of all by the Catholics, while the Protestants occupy an intermediate position, for there is 1 scholar to every 84 Jews, 1 to every 148 Protestants, and 1 to every 314 Catholics.

The attendance on Gymnasias, Latin and Real-schools showed the following figures:

Scholars at the Latin Schools and Gymnasias,.....	4,646
Secondary scholars in Elementary Schools,.....	496
Total,.....	5,141
Scholars at the Real-Schools,.....	3,917
Real Scholars in the Elementary Schools,.....	495
Total,.....	5,412

Or one Latin scholar to every 345 inhabitants, and one real-scholar to every 328. Classing the Latin scholars [this term here always includes the scholars of the Gymnasias] according to religion, there are among them 4,081 Protestants, 947 Catholics, 106 Jews, and 7 of other denominations; consequently there is 1 Latin scholar to every 298 Protestants, 1 to every 584 Catholics, and 1 to every 110 Jews. Among the Real-scholars there are 4,395 Protestants, 788 Catholics, 228 Jews, and 6 belonging to other denominations; thus there is 1 real-scholar to every 277 Protestants, 1 to every 694 Catholics, and 1 to every 51 Jews.

Statistics show that of 4,081 Protestant scholars in the Latin schools, only 440 advance into the higher classes; of the 947 Catholic scholars only 202, and of the 106 Jewish scholars only 6. Of the total number of Latin scholars there devote themselves to higher academic studies one-fourth of the Catholic scholars, one-ninth of the Protestants, and one-seventeenth of the Jews; that is to say, sixteen-seventeenths of the Jewish scholars close their education with the fourteenth year and enter some practical sphere of activity; the same is the case with eight-ninths of the Protestants and three-fourths of the Catholics. In the Real-schools the number of those who close their education with the fourteenth year is comparatively still larger. Of 5,412 real-scholars only 866 enter the higher Real-schools, i. e. about one-fifteenth.

In the scholastic year 1852-1853, the 86 Classical schools (Gymnasias, Lyceums, Latin-schools and Seminaries) were attended by 4,105 scholars, and the 66 Real-schools by 3,367 scholars; showing an increase in fourteen years of scholars at the Classical schools of 1,000, and at the Real-schools of 2,000. The number of Classical schools during this period has increased by 4, that of the Real-schools by 13.

2. *Number of schools, classes, and teachers' places.*

During the scholastic year 1866-7 there were in operation 9 (so-called) elementary schools, with 22 secondary classes and 22 teachers' places; 90 classical schools [viz. 4 lower theological seminaries, 7 gymnasias, (3 with boarding-schools,) 4 lyceums, and 75 lower Latin schools,] with 329 classes and 247 teachers' places, (viz., 33 classes, with 60 teachers' places at the seminaries and upper classes of the gymnasias and lyceums; 67 classes, with 64 teachers' places in the middle and lower classes of the gymnasias and lyceums; 129 classes with 128 teachers' places in the lower Latin schools. The lower Latin schools are differently organized; 84 consist of only 1 class, 30 of 2, 10 of 3, 1 of 5 classes (called *Pädagogium*) at Esslingen. The average number of scholars in one class of the classical schools is therefore 20; 19 to one teacher; in one class of the (so-called) elementary school, 45.

In the same year (1866-7) the number of real-schools was 79, viz., 70 lower real-schools, and 9 with higher real-classes. The total number of classes is 167, (16 provisional,) with 158 teachers, viz., 19 in the higher and 139 in the lower real-school classes. Their organization differs; 1 (in Stuttgart) with 29 classes; 3 with 8 classes each, 4 with 5 classes, 6 with 3, 11 with 2, and 54 with 1 class each. There are in 167 classes, 4,917 scholars, (an average of 29 scholars to a class,) with 178 teachers, (including 20 temporarily appointed,) an average of 27 scholars to a teacher. During a period of 34 years, (1833-1867,) 201 real-school teachers were appointed, an average of 6 new appointments per year. In 1867, 14 new real-school teachers were appointed, whilst only 5 left. In the same year, 20 candidates passed the examination, (viz., 5 real-school teachers, 13 *collaboratoren*, and 2 real professors. During the 14 years from 1853 to 1867, 151 classical teachers were appointed, an average of 10 new appointments per year. During the same period, 156 candidates passed the examination. This number, however, was not sufficient, and the government has hitherto been constantly obliged to appoint a number of non-examined candidates.

3. *Expenses.*

a. *Contributions by the State and the commune.*—The State contribution for superior instruction during the fiscal period 1867-1870 amounted to 364,150 florins per annum, which are distributed in the following manner:

I. Expenses of the Classical and Philological Seminary,....	1,975 fl.
II. Expenses of Classical Instruction,	
Lower Seminaries and Central Examination (<i>Landexamen</i>)	81,195 fl.
Gymnasias, Lyceums, Latin Schools,.....	113,683 fl.
Sundries,	8,170 fl.
Total,.....	207,948 fl.

III. For Real-schools,.....	59,635 fl.
IV. For Real-schools and Classical Schools in common,	
Gymnastics,	23,000 fl
Increase of salaries, &c.,.....	50,592 fl
Contributions towards the pension fund,.....	20,500 fl.
Contributions towards the widows' fund,.....	500 fl.
Total,	364,150 fl.

The sum devoted by the State to the classical institutions is more than three times as large as that devoted to the real-schools. Even if the amount (81,195 fl.) chiefly devoted to theological instruction is deducted, the remainder (126,753 fl.) is twice as large as that given to the real-schools. The reason is not to be found in any governmental preference for the classical at the expense of the realistic instruction, but to the fact that the former have certain historic claims, which can not at once be ignored or changed. By degrees the number of classical schools is being reduced. There are already quite a number of Latin schools, which for years have scarcely been able to survive the competition of the modern instruction.

With regard to the real-schools the principle has been maintained that schools of the lower grade are essentially communal institutions, to be supported entirely by the communes, with only occasional subsidies from the State, which was originally the case with many of the Latin schools, but with regard to these, the church authorities lent a helping hand, and many even were entirely supported by such aid and special church funds. A striking example of this is the gymnasium and the real-school at Stuttgart. The former, founded in the 16th century and supported originally by the church, is at the present time almost entirely supported by the State, whilst the real-school, founded in 1818, is for the greater part maintained by the commune of Stuttgart. The expense of the real-school in Stuttgart for the scholastic year 1867-1868 amounted to 45,154 florins, which was met as follows: by the State, 15,243 fl.; by the commune, 16,011 fl.; by school-fees, 16,900 fl. The expense of the gymnasium for the same period was 48,816 fl., while the commune of Stuttgart only pays 817 fl., and the State 35,999 fl., the remainder. 12,000 fl., being borne by the school fees. The proportion of State contributions to the communal ones is therefore as three-fourths to one-sixtieth.

In December, 1861, the total expense of the real-schools was 166,141 florins, viz., State contribution, 54,527 fl.; communal contribution, 78,440 fl.; school-fees, 33,173 fl. Entirely different is the proportion with regard to the classical schools for the same year, which we take, as we have no later exhibit of their financial status. In that year the total expense amounted to 177,197 fl. Of this sum, 75,881 fl. were paid by the State, and 77,097 fl. by the communes, whilst the remainder, 24,000 fl., was paid by the school-fees. Since then the number of schools and of teachers has been increased; since 1858 and 1864 the salaries have been considerably raised, the increase with the 60 teachers' places in the upper

classes being paid by the State, and in the lower classes half by the State and half by the communes. But the proportion between the two contributing parties has not been altered materially.

b. School-fees.—There are no uniform regulations with regard to the amount of school-fees to be paid, nor the modes in which the avails shall be employed. There are towns (generally wealthy) where no school-fees are exacted either in elementary or in higher schools, as in Nagold. In some communes the fee is small, and is raised to remind parents of the fact, and the value of public instruction. The highest sum is paid by the externes (non-boarders) pupils of the lower seminaries, viz., 28 fl. per year, which is semi-annually distributed in equal portions to the three teachers longest in service. The lowest school-fee known is 2 florins per annum. Unless affected by endowments, or other special cause, the school-fee at superior schools is higher than at lower ones, and in larger than in smaller towns; and at real-schools than at gymnasia, lyceums, and Latin schools. In Stuttgart, where the school-fee at the real-school varies (according to the class) from 16 to 26 florins, at the gymnasium it is from 20 to 22 fl. At the real-school of Tübingen the school-fee in all classes is 6 fl., but in the gymnasium of the same city it varies from 11 to 18 fl. In some country towns the real-scholar annually pays 2 and the Latin scholar 7 florins; frequently sons of teachers are entirely exempt. In many institutions, especially in those which are aided or supported by the State, a certain number of free places exist, which are granted annually to the most deserving scholars designated by the teachers of the school. In some towns there are legacies for maintaining free places, which are bestowed according to the conditions of the legacy.

From the earliest times the school-fees have constituted part of the teachers' salary. The amount chargeable to this source is calculated according to an average for a number of years. This mode of raising income and its application to the salary of teachers has a good influence on the attendance of pupils and the zeal of teachers, but its collection by the teachers often engenders strife among the teachers of different schools, and between teachers and pupils. The government therefore of late has transferred the collecting of the fees to some public officer, with instructions to pay a certain proportion to the teachers. This is done in all new schools and classes, and is gradually applied to old institutions, which cling to their traditions. The rule is not uniform—in some schools the whole sum goes to a special fund for the benefit of the teachers, as in Stuttgart; in others, as at Tübingen, the whole sum is paid into the city treasury, and the teachers are paid a stipulated salary, without reference to the amount collected from this source; in others, it is paid into the treasury, with no advantage to the teachers.



PUBLIC INSTRUCTION IN THE FREE CITIES OF GERMANY.

I. HISTORY. POPULATION. GOVERNMENT.

THE "FREE HANSEATIC CITIES," Frankfort on the Main, Hamburg, Bremen, and Lübeck, formed a union in 1815, by which they became a corporate member of the German Confederacy, with one joint vote in the diet. This union is the sole remnant of the famous "Hanseatic League" which, first entered into by Hamburg and Lübeck in 1241, for mutual safety and the protection of their trade, was extended to embrace all the principal cities between Holland and Livonia, and was for many years the undisputed mistress of the Baltic and German Ocean. After the 15th century the power and influence of the League gradually declined, until in 1630 it was dissolved, Hamburg, Bremen, and Lübeck alone remaining faithful to their ancient alliance.

As "free cities" they are also remnants of the once numerous Imperial cities, which were not subject to any superior lord but were immediately under the empire, possessing various privileges and distinctions granted by the emperors or obtained by purchase.

HAMBURG is the largest of these cities and the capital of a small republic of an area of 185 square miles, consisting of two distinct territories, one of which is the joint property of Lübeck. Its population in 1860 was 230,000—176,000 belonging to the city and its suburbs, of whom 10,000 are Jews. Hamburg ranks as the greatest emporium of trade on the continent, and, next to London, has the largest money exchange transactions in Europe. It is also one of the principal ports for transatlantic emigration, and the center of a very extensive business in marine insurance. The government is in the hands of a moneyed aristocracy, the sovereign power being exercised by a senate of eighteen members, and a legislative body of 192 members. The latter body elect the senators for life, who annually elect a president from their own number.

FRANKFORT possesses a small territory of about thirty-nine square miles, with a population in 1861 of about 87,500. It is one of the most ancient cities of Germany, and from its position has from an early period been the commercial and political center of the nation. It derives great wealth from its banking transactions. The government is vested in the senate, with four syndics, twenty-one members, and two presidents, elected by the citizens; the legislative chamber is composed of fifty-seven members, and the highest court of appeal is, as is also true of Hamburg, the supreme tribunal at Lübeck.

BREMEN possesses an area of 112 square miles, with a total population in 1862 of 98,500, of which 67,000 belonged to the city itself, 6,500 to Bremerhaven, and 4,000 to Vegesack. It carries on an extensive commerce, especially with the United States, and is an exceedingly thriving place, its trade having more than doubled in ten years. The territory includes, besides the main port at Bremerhaven, two market towns and about sixty villages. The government is intrusted to a senate composed of four burgomasters, two syndics, and twenty-four councilors, and to a convention of resident burghers.

LUBECK, nominally the chief of the Hanse towns, has an area of 142 square miles, consisting of ten isolated portions, and including a population of 50,614. It is still a thriving commercial town, though by no means so prosperous and important as formerly. The government is vested in a Senate of fourteen members, and an Assembly of 120 members.

II. GENERAL HISTORY OF EDUCATION.

In the FREE CITIES, as in all the older cities of Germany, and indeed of Europe, the earliest schools were formed in connection with the convents and cathedrals—they were of the church and for the church—and so continued for centuries. Of the three schools at Frankfort, the earliest was that attached to the collegiate church of St. Bartholomew, whose origin dates in the earliest times of the Carlovingians, at least, in the reign of Louis the Germanic, early in the ninth century. The others, connected with the churches of Our Blessed Lady upon the Mountain and of St. Leonard, were probably commenced early in the fourteenth century. The origin of the cathedral schools of Hamburg and Bremen may be credited to the activity of the noted Ansgar, or Anscharius, apostolic legate and afterwards bishop of Hamburg, who is known to have previously superintended the Benedictine convent school at Corvey, from which the first teachers for these schools were brought. The date of the school at Hamburg is fixed at 884—of the one at Bremen, somewhat earlier. The school at Lübeck was probably founded in 1163, when Bishop Gerold of Oldenburg removed his bishopric and established the cathedral there. The Hamburg church and school were several times destroyed—in 840 by the Normans, in 1012 by the Wenden, and in 1072 by the Slaves—and they were yet again rebuilt in the 18th century; they have continued in existence together until the beginning of the present century, when the cathedral, being very much out of repair, was torn down and the school ceased. A list of the scholastics at the head of this school is preserved, extending from 1212 to 1805, when its last scholastic, John Julius Palm, died.

In respect to the organization of these schools, a distinction is to be made between the lower, "exterior" school, from which probably grew the public school and the gymnasium, and the higher interior, or "domiciliary" school, which was designed especially for the training of ecclesiastics. The latter was in charge of the "scholasticus," whose duty it

was "to give faithful instruction in the scholastic sciences, and especially in grammar." The lower division was an elementary boys' school (trivial school) under the direction of the "rector scholarum" or "magister scholarum," also known as "ludi magister," who was appointed by the scholasticus and sometimes paid by him. When afterwards the domiciliary school declined and with it the efficiency of the scholasticus as an instructor, he seems to have acted merely as a superintendent of the school and to have been chiefly occupied with the management of the business of the chapter, of which he was usually one of the prelates. The office was well endowed and consequently much sought after, and was sometimes conferred upon persons who were not members of the chapter. Hence by degrees, in later times, the rector scholarum became the only teacher, appeared on festive occasions at the head of the school, and gave instruction in the higher as well as the lower branches. He also had his assistants (called "loca tenentes," "locati," "socii," "collaboratores," or "substituti,") selected by the rector and paid from his own income. The tuition fees were at first very light (at Hamburg 100 pfennings, or 18 cents; at Lübeck 2-4 schillings, or 4-9 cents, annually) and for the poorer classes were diminished, or remitted entirely. These rates were increased with the depreciation in the value of money. Many endowments were made for the benefit of the scholars, poor scholars were provided for by the legate and others, and there was no want of feast days (See Grimm's description of the Gregory Feast, in the "Kind- und Hausmärchen," II., XXXII.) In these schools, instruction was limited almost entirely to the Latin language and religion; in German there seems to have been very little instruction given, and in Greek and Hebrew, none at all. Reading and writing were taught in order to exclude the establishment of other schools, and singing received especial attention on account of its importance in the church service. For a still higher theological education, "lectures" were established and endowed, readers being appointed who read the scriptures and explained the more difficult passages, and by degrees became the exponents of the sciences to the convents and chapters, and these places were often filled by learned men called in from other States. These lectures have continued in Lübeck to the present time and have been transferred for the essential purpose for which they were created, the instruction of the younger theological classes, to the use of the Protestant churches. After the establishment of the university at Mentz, the domiciliary school at Frankfort declined, the inferior school alone remaining.

Another institution that has survived till the present time which originated in connection with the Hamburg church and school, is the "Fraternity of Poor Scholars," founded about 1285 for the decent burial of poor or stranger priests, clerks, and students.

At length, in the 14th century, arose what we are used to call the revival of classical study. Commencing in Italy, Rudolf Agricola was the first mentioned representative of the new tendency in Germany, though Erasmus attained the greatest renown in his defense of humanism. The youth applied themselves with enthusiasm to the study of the classics

BREMEN possesses an area of 112 square miles, with a total population in 1862 of 98,500, of which 67,000 belonged to the city itself, 6,500 to Bremerhaven, and 4,000 to Vegesack. It carries on an extensive commerce, especially with the United States, and is an exceedingly thriving place, its trade having more than doubled in ten years. The territory includes, besides the main port at Bremerhaven, two market towns and about sixty villages. The government is intrusted to a senate composed of four burgomasters, two syndics, and twenty-four councilors, and to a convention of resident burghers.

LUBECK, nominally the chief of the Hanse towns, has an area of 142 square miles, consisting of ten isolated portions, and including a population of 50,614. It is still a thriving commercial town, though by no means so prosperous and important as formerly. The government is vested in a Senate of fourteen members, and an Assembly of 120 members.

II. GENERAL HISTORY OF EDUCATION.

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members into the school committee. The first ecclesiastical authority of the town is also, *ex-officio*, a member of the committee; and if the town contains both Romanists and Protestants, the committee must be composed of equal proportions of members of the different parties. The county courts have the power of annulling the election of any member, if they see reason to deem him unfit for the exercise of the duties of his office, and in such a case, the town authorities are obliged to proceed to make a new election.

The duties of the town school committees are to provide sufficient school-room for all the children in the town; to elect a sufficient number of teachers; to pay them their salaries regularly; to provide all needful apparatus for the schools; to keep the class-rooms and the teachers' houses in good repair, well whitewashed, and well warmed; to take care that all the children of the town attend school regularly; to inspect the schools at stated intervals; *to provide each school with a play-ground*; and to take care that the teachers exercise the children there every morning and afternoon. The funds required for the maintenance of the town schools, are provided from the treasury of the corporation.

The town councillors are responsible to the county magistrate and to the central government for the due performance of these several duties. If they neglect any of them, the teachers and inspectors complain to the higher authorities, who oblige them to conform immediately to the general law of the land.

Besides these municipal authorities, for the superintendence of the education of the whole town, it often happens, that each school in the town has its peculiar *schulvorstand*, corresponding to the village committees, which I have already described. These committees, where they do exist in the towns, elect their own teachers, and collect, in their several districts, the necessary school funds from the heads of families dwelling there; but if any one of the district school committees is not able to provide for the expenditure required to supply the wants of its district, the town school committee is obliged to come forward and assist it, from the general town funds. The latter committee is the general superintendent and assistant, but the former little district societies, where they exist, are the actual laborers. Difference of religion creates no greater difficulty in the towns than in the country parishes, since the Romanists, Protestants, and Jews can, if they prefer, manage their own schools separately, by means of the little school societies, and are never forced into any sort of connection, unless, where it is agreeable to themselves.

The Prussian government seems to have considered the education of the children of the towns, of even higher importance, than that of the children of the villages; and to have required the formation of these superior committees in the towns, as a sort of additional security, that all the districts of a town should be amply provided with every thing necessary for the careful education of their children.

These committees assemble every fortnight, and oftener when necessary, at the town halls; they have the power of inviting any number of the clergy and teachers of the towns to assist at their conferences, and to aid them with their experience and counsels.

In many parts of Prussia these central town committees are superseding the smaller district school societies, so that the funds of all the town schools, and the choice and induction of all the teachers rest entirely with the one central town school committee; and in the case of towns containing different religious sects, as far as I could gather from what I heard in Berlin—for on this point I could find no express regulation—the Protestant members of the town committee appoint the teachers of the Protestant schools, and the Romanist members the teachers of the Romanist schools.

But in every town every religious party is at liberty, if it pleases, to separate itself from the central town committee, and to form its own separate school committee, for the management of its own educational affairs. And where ever the union of the different religious parties occasions any strife and disputes, the small district committees are sure to be formed. Where these smaller committees do exist, they elect the teachers for the schools under their management.

Great advantages are, however, insured, when the management of all the schools in any town can be put under the direction of *one* committee, instead of

each being placed under the direction of its separate committee; or when all the Romanist schools can be put under the direction of one committee, and all the Protestant schools under the direction of another. For, in these cases, instead of creating a great number of *small* schools in different parts of the town, each containing only one or two classes, in which children of very different ages and very different degrees of proficiency must be necessarily mingled and taught together, to the manifest retarding of the progress of the more forward as well as of the more backward, several schools are generally combined, so as to form one large one, containing five boys' classes and five girls' classes. In these classes, the teachers are able to classify the children in such a manner, that one teacher may take the youngest and most deficient, another the more advanced, and so on. In this manner, as each teacher has a class of children, who have made about the same progress in their studies, he is enabled to concentrate his whole energies upon the instruction and education of *all* his scholars at the same time, and for the whole time they are in school, instead of being obliged to neglect one part of his class whilst he attends to another, which is necessarily the case, where children of different degrees of proficiency are assembled in one class-room, and which is always necessarily the cause of considerable noise and confusion, tending to distract the attention of both teachers and children.

But, besides the good classification, a further advantage, which results from this combination of schools, is the greater economy of the plan. When each school contains only two class-rooms, four times as many schools are required, as when each school contains eight rooms. And it is by no means true, that a school-building containing eight class-rooms costs as much as four school-buildings, each of which contains two class-rooms. Not only is a great expenditure saved, in the mere erection of the exterior walls and roofs of the buildings themselves, but a still greater saving is effected, in the purchase of land, as, instead of increasing the area on which the school is erected, it is always possible to increase its height.

Nothing can be more liberal, than the manner in which the Prussian towns have provided for their educational wants. The buildings are excellent, and are kept in most admirable order.

The town authorities are held responsible for all this; and, wherever I went, I found large, commodious, and beautifully clean school-rooms, furnished with all that the teachers could possibly require. Along the length of the rooms, parallel desks are ranged, facing the teacher's desk, which is raised on a small platform, so that he may see all his scholars. On either side of him are large blackboards, on which he illustrates the subjects of his lessons. On his right hand, there is generally a cabinet, for the reception of all the books and objects of instruction which belongs to the school; and all around, on the walls of the room, hang maps of different countries, and, generally, several of Germany, delineating, in a strong and clear manner, all the physical features of the different provinces and kingdoms which compose the "Fatherland."

The school-rooms are continually whitewashed; and should there be any neglect on the part of the town or village authorities to keep the school-buildings in proper order, or to provide all the necessary apparatus, the teachers have always the power of complaining to the inspectors, or to the country magistrates, who immediately compel the authorities to attend to these important duties.

Besides the schools, which are managed by school committees in the villages and towns, and which might be denominated public schools, there is another class, which would fall more properly under the designation of private schools.

If a private individual is desirous of establishing a school, as a means of earning his livelihood, or from a desire to offer to the poor of his neighborhood a better education, than they could obtain in the public schools, he is at liberty to do so, on the following conditions:—

1st, That the school be opened to public inspection, on the ground, that as the nation is directly interested in the moral education of its citizens, so it ought to be assured, that none of the children are subjected to immoral and corrupting influences, during the time when their minds are most susceptible of impressions of any kind, and most tenacious of them when received.

2dly, That no person be employed as teacher in such school, who has not ob-

tained a teacher's diploma, certifying his character and attainments to be such, as to fit him for the office of teacher.

3dly, That the school be supplied with a play-ground, and that the children be allowed to take exercise there in the middle of the morning and afternoon school hours.

4thly, That at least a certain fixed amount of instruction in reading, writing, arithmetic, geography, history, singing, and science be given in the school.

5thly, That a sufficient number of teachers be provided for the children ; and,

6thly, That the rooms are kept clean, well warmed, lighted and ventilated.

The profuse expenditure on all the material of education in the Prussian towns astonished me greatly, accustomed as I had been to the dame schools of England, and to the empty and repulsive interiors of many of our national school-rooms, with their bare floors and uncovered walls.

I took the greatest pains not to be deceived on this point ; and hearing that, owing to some municipal disputes, education had made less progress in Berlin than elsewhere, I requested Professor Hintze of Berlin, to direct me to the worst school in the city, and, having visited several of the more perfect ones, I started one morning to see what was considered a poor school in Prussia.

It was managed by a teacher, who had established a school for the poor at his own expense, as a private speculation, and unconnected with the town committees.

I found a good house containing *four* class-rooms, each of which was fitted up with parallel desks, and was under the direction of a teacher, who had been carefully educated, and had obtained his diploma.

I found a good, dry, and roomy play-ground attached to the school, a very agreeable and seemingly intelligent head master, who was owner of the school, and manager of one of the classes ; and the only cause of complaint I could discover, were, that the rooms were lower than the generality of school-rooms in Prussia, not measuring more than nine feet in height ; that there was a paucity of maps, blackboards, &c. ; that the desks were placed too closely together ; and that the walls were not so white and clean as in the town schools. But I could not help thinking, while walking through the rooms of this building, if these people could only see some of our dame, and some of our dirty and unfurnished national schools, what a palace would they not consider this to be !

The regulations which I have been describing, by means of which the enormous expenses of such a vast educational scheme are divided between all the different districts of the kingdom, and by means of which each parish is held responsible for the education of its children, have been followed by this splendid result—that, notwithstanding that most of their town schools contain five or six times as many class-rooms as those of our country, the Prussian people have established 23,646 schools, which, in 1844, were attended daily by 2,328,146 children, and were directed by 29,639 highly educated teachers, of whom nearly 28,000 were young professors, who had obtained diplomas and certificates of character at the normal colleges ! Now, could this magnificent result have been attained if the people, the clergy, and the government had not been at unity on this great question ? Could it have been attained, if there had been no organization of the parishes and towns, by which the duties of the different educational authorities were clearly and distinctly defined ? Could the government alone have borne the enormous expenses of establishing such a system ? Could the government have even afforded to carry it on ? And, above all, could private charity alone have effected so vast and splendid a result ? These are questions for my readers to answer for themselves.

The central committees of each town are required by law to establish, in addition to the primary institutions, which I have described, one or more *superior primary* schools, the number of which varies according to the population of the town. The education given in them is superior to that given in the primary schools themselves, but is inferior to that given in the *gymnasias*. It is of a more practical character than the latter, and is quite as good as the education of the children of our middle classes. These *superior primary* institutions are intended for all those children, who have passed through the primary schools, and whose parents wish them to receive a better education than that given in the latter

establishments, without their having to go through the classical course of the gymnasia.

The education given in these superior schools, as in all the public schools of Prussia, is gratuitous, and open to all classes of society. All the children of the small shopkeepers and artizans, many of the boys, who afterward enter the teachers' colleges, as well as many others, whose parents are to be found in the very humblest walks of life, and even children of the nobles, and of the richest classes of society, are to be found pursuing their studies there together, in the same class-rooms, and on the same benches. I have myself seen sons of counts, physicians, clergymen, merchants, shopkeepers, and poor laborers working together in one of these classes in Berlin.

Above these superior schools are the *real* schools and *gymnasia*, or colleges, where a *classical* and *very superior* course of education is pursued, and where the children of the more wealthy classes are instructed. They are under an entirely different direction; and all I have to do with them here, is to mention, that even these institutions are open gratuitously to all, who wish to avail themselves of the education which they offer. Even in these *classical* colleges children of poor laborers are sometimes to be found studying on the same benches on which sit the sons of the rich. It is very instructive to observe, that in Prussia, where one would imagine, according to the doctrines preached in England, that the government should, until the late revolution, have feared to advance the intelligence of the people, no one has seemed to have an idea, that too much instruction could be imparted to the children of the poor. On the contrary, every one has acted as if the public order and public morality depended entirely upon the people being able to think. A theoretically arbitrary government has been doing every thing in its power to stimulate and enable the people to educate their children as highly as possible, and has been for years telling them, that the prosperity and happiness of the country depend greatly on the training of the children; while here, in our free country, we still find people speaking and acting, as if they feared, that education was the inevitable harbinger of immorality and disaffection.

There are also in Prussia a great number of *endowed* schools, which derive their incomes from the rents of lands, or from the interest of money bequeathed to them by charitable individuals, or which have been founded and endowed at different times by the government. For each of these cases, there is an exception made in the operation of the municipal regulations, which I have described: neither of these classes of schools are directed by *Schulvorstände*, or by the town committees. The teachers for the *former* class are chosen by the trustees, appointed by the will of the deviser; the county courts being enabled to annul the elections, if a bad selection is made. The trustees, however, are unable to appoint any person, as teacher, who has not obtained a diploma* of competency from the provincial committee, appointed to examine all candidates for the teachers' profession. In fact, no person can officiate as teacher, in *any* Prussian school, unless he has obtained such a diploma. This is the parents' guarantee, that he is a person, to whom they may safely intrust their children. The teachers of the *class* of schools, which have been founded and endowed by government, are appointed by the county courts. The town committees have, however, the surveillance and inspection of all these schools, and are obliged by law to assist them from the town funds, if their own do not suffice for their efficient maintenance. The municipal authorities are also obliged to assist all the parents, who are too poor to do it themselves, to purchase the books, slates, pencils, &c., required for the class instruction; and they are also obliged to provide decent clothing for such children, as are too poor, to obtain a dress sufficiently respectable for school attendance. And here, I can not help remarking, on the general appearance of the children throughout the provinces of Prussia, which I have visited. They were generally very clean, well dressed, polite, and easy in their manners, and very healthy and active in their appearance. In whatever town of Prussia the traveler finds himself, he may always satisfy himself on this point, if he will take the trouble to walk out into the streets, between twelve and two o'clock in the morn-

* For an account of diplomas, see page 168.

ing, *i. e.*, between the hours of the morning and afternoon classes. In some towns, a stranger would imagine, either that the *poor* had no children, or that they never let them go out of doors. All the children he would see in the streets would appear to him to be those of respectable shopkeepers. This is a very satisfactory proof of the good effects of the school system, as cleanliness and neatness among the poor are invariable symptoms of a satisfactory moral and physical condition.

The law requires that every school, both in town and country, shall have an open space of ground adjacent to it, where the children may take a little exercise in the mornings and afternoons. This is a very important regulation, and is well worthy our imitation. The children, in Germany, are never detained more than an hour and a half in the school-room at one time, except when the weather is too bad, to allow of their taking exercise in the open air. Every hour and a half, throughout the day, they are taken into the play-ground for ten minutes' exercise by one of the teachers; the air of the school-room is then changed, and the children return refreshed to their work. In the towns this regulation insures other and greater advantages, as it keeps the children out of the filth and immorality of the streets. In most cases, our town-schools have no yard attached to them, so that, if the children do change the bad and noxious air of the school-room, it is only for the dirt and depravity of the streets, where they are brought under evil influences, much more powerful for injury, than those of the schools are for good.

In some provinces of Prussia, there are still some few of the old class of great landowners, between whom, in former days, the whole of Prussia was divided, until Stein and Hardenburg put the laws in force, which destroyed the old feudal system, and gave the peasants an interest in the soil. It is, therefore, an interesting question to examine, what the law requires these landlords to do for the education of the people on their estates. I have already mentioned, that the selection of the teacher is left to them, but that the government reserves the right of a veto upon their choice, in all cases where an injudicious election is made. The landlords are required to keep in good repair the schools upon their estates, and to pay the school-fees for the children of all the poor laborers living upon them, and not able to pay it themselves. They are also obliged to furnish the materials, required for the erection or repair of all necessary school-buildings; the fuel required for the school-rooms and teachers' houses through the winter; and, where the school is not endowed, the sum which is necessary for the teachers' salaries. The children of the landed proprietors themselves, often attend the village schools, and work at the same desks, with the sons and daughters of the poorest peasants—a proof of the excellent character of the education given in the primary schools, and of the high estimation, in which the teachers are generally held by all classes of society.

About eight or ten years since all the German schools were conducted on the Bell and Lancasterian methods, the children being left almost entirely in the hands of young and half-educated monitors, as in our own parochial schools at the present day. The results of this system were so unsatisfactory that they soon occasioned a powerful reaction in the contrary direction. The German governments, perceiving how grievously the mental education and mental development of the children were retarded by subjecting them to the imperfect care of half-educated monitors, prohibited all employment of monitors in the parochial schools. Hence, it became necessary to considerably increase the staff of teachers, as well as the expenditure required for their support. In the towns this has been productive of beneficial results, as the towns can always raise sufficient funds for the support of a sufficient number of teachers. I generally found that each of these schools throughout Germany had a staff of from six to twelve teachers attached to it, each of whom had attained the age of twenty years, had been specially educated in the classes of the primary, secondary, and normal schools, from his sixth to his twentieth year, and had obtained a diploma certifying his fitness for the profession to which he had devoted himself.

But in the village schools the results of this rejection of all monitorial assistance has been less satisfactory. The villages are not generally rich enough to support more than two teachers, and often not more than one, and this, too, in many cases, where there are 150 children who attend the school. In these cases,

therefore, monitors are greatly needed to assist in maintaining order among one part of the children, while the teacher is instructing another part, and to relieve the teacher from the more mechanical part of class instruction, so that he may apply his undivided attention to those branches of instructions, in which his superior skill, knowledge, and experience are most needed.

But the prejudices which the Germans have imbibed against the monotorial system, are, as yet, too strong to allow them to perceive the necessity of employing monitors in the village schools. Whenever I addressed a German teacher on this subject, he immediately answered, "Oh! we have had enough of your Lancasterian methods; depend upon it, we shall never try them again." It was very surprising to me to see, how universal and how strong this antipathy to monitors was throughout Germany; but it served to show me, how deep an interest all classes took in the prosperity of the schools, as it was evident that they only rejected this means of lessening the parochial outlay in the support of teachers, because they believed it to be essentially injurious to the sound mental progress of the children.

No doubt that the old monotorial system was deserving of all their maledictions; but it would well become the Prussian educational authorities to consider, whether the means between the old system and the present, such, viz., as the monotorial system pursued in Holland and France, is not the true state of things to which they ought to aspire. In these countries, the teachers train the most promising of their oldest and most advanced scholars as monitors. They give them instruction in the evenings when the day's work in the school-room is over. These monitors are paid by the parochial authorities just enough, to make it worth their while to remain at their posts as assistants to the schoolmasters until about seventeen years of age, after which time they are removed to the normal colleges to be trained as teachers, whilst other children take their places in the village schools. To these trained and paid monitors nothing is intrusted, but the mere mechanical parts of school teaching, *such as the elements of reading, writing, and arithmetic*. All the higher and more intellectual parts of school education, such as religious instruction, history, geography, and mental arithmetic, are conducted by the schoolmaster himself. But the principal service which the monitors render to the teachers is, in preserving order and silence in the school, and in watching over those classes, which are not for the time being receiving instruction from the schoolmaster. By this means, one able master, with the aid of two intelligent monitors, may conduct a school of 100 children; whenever the number, however, exceeds 100, there should in all cases be, at the least, two superior teachers.

As I have already said, the want of monitors is felt most in the village schools; for the town schools are conducted in a totally different manner. In a town a greater number of children are found assembled together, and greater funds are always found at the disposal of the school authorities, who, it will be remembered, are elected by the people. In each of the Prussian towns, several great school-houses are generally built, each containing from four to sixteen class-rooms. The number does not, I believe, generally exceed eight in one school-house, and some have not more, but hardly any fewer than four. In Germany, except in the poorest villages, different classes are never instructed in the same room. Even in the villages, there are generally two or three class-rooms in the village school-house, for each of which a separate teacher is maintained. This plan of teaching the different classes in different rooms, adds incalculably to the efficiency of the education given. In each room, only one voice is heard at a time—the voice of the teacher or one of the children. The attention of the children is not disturbed or diverted from the teacher by what is going on in another class. Each room is perfectly quiet. The teacher can be heard distinctly, and can hear every noise in his class. Besides all this, for equal numbers of children four or five times as many teachers are employed in Germany as in England. Each child receives, therefore, four or five times as much assistance and attention from a learned man as a child does in England. The individual progress, therefore, of the children in the German schools (and the same may be said of the Swiss schools,) is very much greater than that of the English children. Over each school-house one head teacher is appointed, who is an elderly and experienced man, and who himself takes the management of the highest class. Under him are appointed a number of younger teachers, corresponding to the number of class-rooms in the school-

house. These younger masters board with the head teacher in his house, which is generally constructed large enough to afford lodgings for the staff of masters required for all the classes. If the class-rooms do not exceed four, the boys and girls are mixed together in the different rooms, and are divided into four classes, according to their proficiency. If, however, the school contains more than four class-rooms, then the girls and boys are separated into two distinct divisions, each of which is divided into three or four classes according to the proficiency of the children. In the town schools, therefore, it is much easier to dispense with monitors, as no teacher is perplexed with having to direct different classes in the same room. Each teacher has only to instruct a small number of children of about the same proficiency in the same subject, at one time and in a separate room. He can, therefore, at all moments engage all his children in the same occupations, keep them all under his constant inspection, and direct their operations much better than where these operations themselves are necessarily of three or four different kinds at the same time. But even in such case, the teachers require the assistance of monitors, in the writing, drawing, and ciphering exercises; or else, as I have often observed, when the teacher's attention is withdrawn from the class, or when he is attending to some individual pupil in one part of the school, the juvenile spirit is sure to begin to effervesce in another, and to produce noise, disorder, and interruption. This want of assistance for the principal teachers was almost the only fault I could find with the Prussian schools.

The school-buildings were generally excellent, and often handsome; the class-rooms numerous, lofty, capacious, and *always* clean; for the inspectors take great care that the parochial authorities do not neglect the whitewashing and repairs. The scholars themselves were always exquisitely clean. The rooms were constantly whitewashed and scoured. The law obliges the school committees to do this. If any neglect in these particulars is evident, the inspectors and county magistrates are empowered and required to act for the parochial committee, and to raise the funds necessary for the purpose by a parochial rate levied upon the householders. But from the beautiful neatness and cleanliness and from the excellent repair of the school-rooms which I saw in different provinces of Prussia and Germany, it appeared to me, that the people fully understood and appreciated the importance and utility of these regulations.

The class-rooms were always well fitted up with parallel desks and forms, and almost always with excellent maps of Germany, on which all the leading physical characteristics of the country were delineated in a strong and forcible manner, and on a large scale; and also with smaller but excellent maps of other parts of the world.

At one end of each class-room is the teacher's desk, raised a little above the others. Behind, and on each side of him hang great blackboards, fastened to the wall by moveable hinges. On these he writes copies of the writing exercises, and draws all his figures, &c., for the illustration of his lessons: and on all these also each child is called upon in turn to explain arithmetical operations, or to fill up or draw the outlines of a map of some part of Europe, or of one of the principal countries of the world. The space between the teacher's desk and the other end of the room is filled with parallel rows of desks and forms, at which the children work; for the Prussians are too anxious to make the children interested in their school duties, to think of making education more disagreeable to them than it necessarily is, by forcing them to stand through nearly the whole of their lessons, as they do in many of our national schools to this day. Each school has also a yard, where the children take exercise in the middle of the morning and afternoon school hours, to refresh themselves, and to awaken their faculties, while the windows of the class-rooms are thrown open, and the air of the rooms is thoroughly purified.

Some persons seem to imagine that, if a school-room is built and children attend it, the results must needs be good; but it behooves them to examine whether they have left any influence at work upon the children's minds, stronger than the influence for good which the school affords. If it is so, it seems a little sanguine, to say the least of it, to hope for happy results. The whole system of things in Germany is so entirely different to that in England, that any one who attempts to describe it to Englishmen must necessarily appear to exaggerate. I

can only say, let doubters go and inspect for themselves, and I am convinced they will own, that I have not said nearly so much as I might have done, in favor of the wonderful efforts the people and the governments are making to advance the great cause of popular instruction.

Each child buys its own books and slate. Those children, however, who are too poor to pay the small school-fees, and who are consequently sent to school at the expense of the town or parish in which they dwell, are provided with books, &c., by the town or parochial authorities. The children generally carry their books home with them; and every morning at a quarter to eight o'clock, a traveler may see the streets of a German town or village filled with boys and girls, neatly dressed and very clean, hurrying to school; each of the boys carrying his school-books in a small goat-skin knapsack on his back, and each of the girls carrying hers in a small bag, which she holds in her hand. The cleanliness and neatness of dress which I generally observed among the children very much surprised me, and always served to convince me how the educational regulations were tending to civilize and elevate the tastes of the lower classes throughout Germany. At first, I was often disposed to doubt the veracity of my companions, when they assured me that the children I saw were the sons and daughters of poor laborers.

The very way in which children of different ranks of society are to be found mingled in the same school, serves to show how superior the civilization of the lower orders in Germany is to that of the English peasants. With us it would be impossible to associate, in the same school, the children of peasants with those of even the lowest of our middle classes. But in Germany, I *constantly* found the children of the highest and of the lowest ranks sitting at the same desk, and in almost every school I saw the children of the lowest and of the middle classes mingled together.

In Berlin, one of the teachers, on my asking him whose sons the boys at one of his forms were, requested them to tell me in what occupations their fathers were engaged. From these boys I learned, that one was the son of a clergyman, another of a physician; that others were the sons of small shopkeepers, and others the sons of errand-men and porters. Now, were not the children of the errand-men and porters very much more civilized, polished, and, if I may use that that much abused word, more *gentlemanly* than the same class of children in England, such an association would be totally impossible. And yet this to us incredible state of things, exists with infinitely less discontentment and social disturbance than we find among our laboring classes in England.

But it must not be imagined that the educational system is in a stationary state, that the people and the government are resting upon their oars, or that they now think that they have done enough, and that they can let the stream bear them on without further exertion. Far, far otherwise; on every hand extensive improvements are going on, as if they had only commenced last year, to take any interest in the question, and as if they were only now beginning the work, like fresh laborers. Here I found a new and handsome school-house just finished; there, another one in building; and here, again, old houses being altered and enlarged. In one town I found them preparing a great building for a normal college; in another, I found them preparing to remove one of these noble institutions to a more commodious and larger set of buildings; and wherever I traveled, I found the authorities laboring to establish infant schools, as well as to perfect the educational institutions of their several localities. It sometimes appeared to me as if all the resources of the government must be devoted to this object; whereas my readers must recollect that, except in the cases of the normal colleges, this great work is effected by the people themselves; and that the enormous expenditure, by being divided between all the different towns and parishes in the kingdom, is scarcely felt. Since 1816, every year has witnessed a further progress: old schools have been pulled down, new ones have been erected; the old and less efficient teachers have gradually died off, and their places have been supplied by excellently trained masters who now direct the schools; the young men who are about to enter holy orders have been obliged to study pedagogy, in order to fit themselves to be inspectors; the regulations respecting the factory children, which I have given in an earlier part of this work, have been put in force;

the minimum of the teachers' salaries has been considerably raised, and the system of teachers' conferences has been perfected, and put into operation.

I shall now show what restrictions exist on the free choice of books by the teachers. The Prussian government has here had two evils to guard against: one of these was the retarding of the gradual reform of school-books, which reform will always take place, when the teachers themselves are learned men, when they thoroughly understand the theory and practice of pedagogy, and when they are not fettered by unwise restrictions; and the other was, the admission into the practical schools, of books of an irreligious or immoral tendency. These two evils are guarded against in the following manner:

No book can be used in any school of the provinces, until the authorities composing the provincial *Schulcollegium*, which has the direction of the higher schools and gymnasia, as well as of the normal colleges of the province, have licensed it, or sanctioned its admission. Any book which has been so sanctioned, can be employed by any schoolmaster of the province in which it was licensed. There are, in every province, a great number of works on religion, history, science, &c., which have been thus licensed, and from which the teachers are at liberty to choose. But, if a schoolmaster writes a book, which he deems better qualified for school use than those already published, or if he desires to employ a work written by some one else and which is not licensed, he forwards a copy of it, through the inspector, to the provincial authorities, in order to obtain their consent, which is only refused, where the book is positively imperfect or unfit for the young. In the schools, which I personally inspected, I generally found the school-books very excellent, and written either by teachers, or by some person engaged in the educational profession. Coming as they do from men of very long experience in the practice of pedagogy, they are generally well adapted to answer the wants, which the writers themselves have experienced, in the exercise of their professional duties. With the above restrictions, the choice of books is left entirely to the schoolmasters.

The character of the instruction given in all the German schools is suggestive; the teachers labor to teach the children to educate themselves. There is little or no "cram" about it, if I may use an old university phrase. In most of the best primary schools of England, the teacher still contents himself with the old cramming system; that is, he tries to crowd the memories of his scholars with facts, and continually exercises their memories, without ever attempting to develop and strengthen any of their other intellectual faculties. Now, we know but too well, that a man may have the most retentive memory, and the best stored mind, and yet remain as incapable of reasoning, as improvident, and as irrational as ever. He may be full of facts; but may be as unable to make any use of them, or to turn them to any good account, as one bereft of the faculties of speech, sight, and hearing. If a man can not use his reasoning powers, he is much better without knowledge; to impart facts to a fool, is like intrusting fire to a madman. The great *desideratum* for the poor, as well as for every one else in this world, is a capability of using the reasoning faculties; not that this will always save a man from false ideas and from irrational conduct, but that a man who possesses it will be *more likely* than any other, to take a right view of his position in life, his duties, and his advantages, and will be more likely to understand the best means of improving them.

Next, then, to implanting good principles in the child, the first object of every system of instruction should be, to teach it how to use the high and important faculties, which Providence has given it, as the means by which to insure its temporal happiness and continued self-improvement. Facts are necessary, but facts alone are not enough: to cram a child's mind with facts, without constantly exercising its reflection and its reason, is like feeding it with quantities of rich viands, and denying it all bodily exercise.

The German teachers are, therefore, taught that their duty is to awaken the intelligence of their children, far more than to fill their heads with facts, which they would not know how to use, unless their reasoning powers had been first cultivated. The schoolmasters do not therefore hurry over many facts in one lesson; but endeavor to make them think and reason about the subject of instruction.

The method of instruction is left to the unfettered choice of the teachers, so

that it is impossible to speak with certainty of the methods pursued in the majority of the schools; but in all that I visited, I invariably found the simultaneous method pursued. By this the scholars are divided into different classes, and each class is instructed separately. This is not done on the old shunting plan, where one or two clever-boys give the answer, and all the others follow in the same breath, and often without having known what the question was. Not so: the class under instruction first reads a section or chapter from the school-book, relating to the subject of instruction; the teacher then endeavors to illustrate what the children have been reading, to make them clearly understand it, to assure himself that they do *understand* it, and to impress it more clearly and firmly upon their memories. All this he does by suggestive questions, which he himself does not answer, until he has first tried whether any of the children can answer them for themselves. When a question is put, all the children, who are prepared to answer it, are told to hold up their hands, and the teacher then selects one child, who stands up and gives what he conceives to be the answer; if he is wrong, another is selected to correct him, and so on in like manner; but until the teacher has called upon some one to answer, not a single word is allowed to be spoken by any member of the class. If no one can answer the question, the teacher, before answering it for the children, excites their curiosity about it by questions and hints, and stories illustrating or partially explaining the subject under discussion; and when he has succeeded in interesting the whole class in the answer, he then gives it, but not before. By these means, the reflective powers of the children are exercised and trained; they are taught to think, to inquire and to reason, and their minds acquire strength and activity. During every lesson the teacher stands, and the children sit before him at their desks. The most perfect silence is observed, except when broken by the answer of the scholar fixed on to reply, or by a question made by a scholar seeking explanation, or by a laugh at some amusing story or joke of the teacher. No lesson is continued long. The subjects of instructions are changed about three times in every two hours; and, at the end of every two hours, the children of all the different classes meet in the play-ground, under the charge of one of the teachers, to get some fresh air and a little exercise.

The great object of all this is to make the lessons as interesting and attractive as possible to the children, to keep up their attention, and to gradually develop all the powers of their minds.

This system enables the German teachers to watch and tend the progress of each individual child. No child can screen idleness or ignorance, behind the general shout of the class. The teacher sees instantly, if a scholar fails often to hold up his hand; and as he questions those, who do hold up their hands, by turns, he soon finds out if a child is really attending or not.

One thing which greatly surprised me in all the German and Dutch schools was, the great interest the children evidently took in the subject of instruction. This is to be explained entirely by the manner, in which they are treated and instructed by the teachers. The teachers address them as intelligent, rational beings, and in a conversational manner, as if they expected them to listen and to understand. The teachers further excite their interest by showing them, in all their lessons, the practical use of the knowledge they are acquiring. Constant references are made to the different pursuits, in which the children will be engaged after leaving school; to the commerce of the country, and the way in which it is supplied with the various articles of foreign produce which it requires; to the duties of citizens; to the history of the country; to its produce, its physical characteristics, and its political relations; to farming, in its various branches; to the great inventions and vast undertakings of the day; to the wonders of foreign countries; and, in fact, to all the newspaper topics of the day.

I have myself been obliged to answer questions in the German and Dutch schools about the navy of England, the wealth of England, our metropolis, our colonies, and the miseries of Ireland.

Instruction, or amusement which will excite the scholars to seek instruction, is sought from all the subjects and allusions started by the lesson. The children are made to see the end of instruction and the object of schools in every lesson which is given them. The teachers encourage them by words and looks of approval.

A few words, such as "that's right, Charles," "that's a very good answer," "you have explained it very well," "well done indeed," and such like explanations, stimulate the children as if they were at a game. Added to this, that the teachers are so admirably drilled in the art of teaching, that they perfectly understand how to make every thing clear and comprehensible to the least intelligent scholar of the class, while they are so well educated, that they are able to illustrate each lesson by a hundred interesting stories or descriptions.

The subjects of instruction in the primary schools vary in the different classes. In those for the younger children, who have only just entered the school, they are confined to Scripture history, reading, writing, arithmetic, and singing; but, in the classes for the elder children, not only are higher and more advanced exercises in the above subjects given, but the scholars learn also German history, geography, drawing, and mental arithmetic. In this last subject of instruction, I sometimes found astonishing progress made. Besides the above lessons which the schoolmasters are obliged by law to teach in all schools, the children learn to recite the most beautiful of the Psalms and the finest passages of Scripture, as well as the most celebrated national melodies. In the higher elementary schools, or, as they are called, the higher burgher schools, which are open to all the children who like to enter them after leaving the elementary schools, and which are attended by the sons of small shopkeepers and of laborers also, the course of education is much higher, embracing not only a continued exercise in the different subjects of instruction which I have enumerated, but in addition to these, geometry, universal history, and the French language. No child is *obliged* to attend these schools; but all are admitted, who wish to continue their education there after leaving the primary schools. These schools are only to be found in towns; but each town is *obliged* by law to support *at least* one of them. They are generally very well attended by the children of small shopkeepers, and contain also many children from the poorest ranks of society.

The method of teaching these subjects generally, has already been given under the head of Primary Schools in Germany, in the language of Prof. Stowe and Mr. Mann. We will now give from Prof. Bache, and other authorities, the organization, study table, and methods of instruction of several schools of different grades.

BURGHER SCHOOL AT HALLE.

The series of schools, which now cluster about the Orphan-house of Halle, are called after the name of its founder, the Franke Foundations, and embraces the whole range of public instruction. It begins with the common or elementary schools, in which the instruction terminates at the age of twelve or fourteen years; contains a "higher" or middle school, called, also, a "burgher school," the courses of which end at fourteen or sixteen years, and where the pupil is prepared to enter life as a tradesman. Also, a "real school," its courses ending at sixteen or eighteen, and intended to prepare for the higher mechanical occupations; and a classical school, or "gymnasium," retaining its pupils until eighteen or nineteen years of age, and fitting them for admission to the university.

The attendance on these schools varies from year to year, being made up of pupils from other parts of Prussia, as well as from Halle. The attendance, at the date of Dr. Bache's visit, was as follows:

III. COURSE OF INSTRUCTION

IN THE PRIMARY SCHOOLS

OF GERMANY.

Rev. Calvin E. Stowe, D. D., in 1839, while Professor of Biblical Literature in Lane Seminary, Cincinnati, Ohio, visited Europe, and on his return submitted to the General Assembly of Ohio, in December, 1839, a "Report on Elementary Public Instruction in Europe," in which he thus describes the course of instruction pursued in the Primary Schools of Germany, particularly of Prussia and Wirtemberg.

The whole course comprises eight years, and includes children from the ages of six to fourteen; and it is divided into four parts, of two years each. It is a first principle, that the children be well accommodated as to house and furniture. The school-room must be well constructed, the seats convenient, and the scholars made comfortable, and kept interested. The younger pupils are kept at school but four hours in the day—two in the morning and two in the evening, with a recess at the close of each hour. The older, six hours, broken by recesses as often as is necessary. Most of the school-houses have a bathing-place, a garden, and a mechanic's shop attached to them, to promote the cleanliness and health of the children, and to aid in mechanical and agricultural instruction. It will be seen by the schedule which follows, that a vast amount of instruction is given during these eight years; and lest it should seem that so many branches must confuse the young mind, and that they must necessarily be but partially taught, I will say, in the outset, that the industry, skill, and energy of teachers regularly trained to their business, and depending entirely upon it; the modes of teaching; the habit of always finishing whatever is begun; the perfect method which is preserved; the entire punctuality and regularity of attendance on the part of the scholars; and other things of this kind, facilitate a rapidity and exactness of acquisition and discipline, which may well seem incredible to those who have never witnessed it.

The greatest care is taken that acquisition do not go beyond discipline; and that the taxation of mind be kept entirely and clearly within the constitutional capacity of mental and physical endurance. The studies must never weary, but always interest; the appetite for knowledge must never be cloyed, but be kept always sharp and eager. These purposes are gradually aided by the frequent interchange of topics, and by lively conversational exercises. Before the child is even permitted to learn his letters, he is under conversational instruction, frequently for six months or a year; and then a single week is sufficient to introduce him into intelligible and accurate plain reading.

Every week is systematically divided, and every hour appropriated. The scheme for the week is written on a large sheet of paper, and fixed in a prominent part of the school-room, so that every scholar knows what his business will be for every hour in the week; and the plan thus marked out is rigidly followed.

Through all the parts of the course there are frequent reviews and repetitions, that the impressions left on the mind may be distinct, lively, and permanent. The exercises of the day are always commenced and closed with a short prayer; and the Bible and hymn-book are the first volumes put into the pupils' hands; and these books they always retain and keep in constant use during the whole progress of their education.

The general outline of the eight years' course is nearly as follows:

1. *First part, of two years, including children from six to eight years old; four principal branches, namely:*

1. Logical exercises, or oral teaching in the exercise of the powers of observation and expression, including religious instruction and the singing of hymns.
2. Elements of reading.
3. Elements of writing.
4. Elements of number, or arithmetic.

II. *Second part, of two years, including children from eight to ten years old—seven principal branches, namely :*

1. Exercises in reading.
2. Exercises in writing.
3. Religious and moral instruction, in select Bible narratives.
4. Language, or grammar.
5. Numbers, or arithmetic.
6. Doctrine of space and form, or geometry.
7. Singing by note, or elements of music.

III. *Third part, of two years, including children from ten to twelve years old—eight principal branches, namely :*

1. Exercises in reading and elocution.
2. Exercises in ornamental writing, preparatory to drawing.
3. Religious instruction in the connected Bible history.
4. Language, or grammar, with parsing.
5. Real instruction, or knowledge of Nature and the external world, including the first elements of the sciences and the arts of life—of geography and history.
6. Arithmetic continued through fractions and the rules of proportion.
7. Geometry—doctrine of magnitudes and measures.
8. Singing and science of vocal and instrumental music.

IV. *Fourth part, of two years, including children from ten to twelve years old—six principal branches, namely :*

1. Religious instruction in the religious observation of Nature ; the life and discourses of Jesus Christ ; the history of the Christian religion, in connection with the contemporary civil history ; and the doctrines of Christianity.
2. Knowledge of the world, and of mankind, including civil society, elements of law, agriculture, mechanic arts, manufactures, &c.
3. Language, and exercises in composition.
4. Application of arithmetic and the mathematics to the business of life, including surveying and civil engineering.
5. Elements of drawing.
6. Exercises in singing, and the science of music.

We subjoin a few specimens of the mode of teaching under several of the above divisions.

I. *First part—children from six to eight years of age.*

1. Conversations between the teacher and pupils, intended to exercise the powers of observation and expression.

The teacher brings the children around him, and engages them in a familiar conversation with himself. He generally addresses them all together, and they all reply simultaneously ; but, whenever necessary, he addresses an individual, and requires the individual to answer alone. He first directs their attention to the different objects in the school-room, their position, form, color, size, materials of which they are made, &c., and requires precise and accurate descriptions. He then requires them to notice the various objects that meet their eye in the way to their respective homes ; and a description of these objects, and the circumstances under which they saw them, will form the subject of the next morning's lesson. Then the house in which they live, the shop in which their father works, the garden in which they walk, &c., will be the subject of the successive lessons ; and in this way for six months or a year, the children are taught to study *things*, to use their own powers of observation, and speak with readiness and accuracy, before books are put into their hands at all. A few specimens will make the nature and utility of this mode of teaching perfectly obvious.

In a school in Berlin, a boy has assigned him for a lesson, a description of the remarkable objects in certain directions from the school-house, which is situated in Little Cathedral street. He proceeds as follows : " When I come out of the school-house into Little Cathedral street, and turn to the right, I soon pass on my left hand the Maria Place, the Gymnasium, and the Anklam Gate. When I come out of Little Cathedral street, I see on my left hand the White Parade Place, and within that, at a little distance, the beautiful statue of Frederick the Great, King of Prussia. It is made of white marble, and stands on a pedestal of variegated marble, and is fenced in with an iron railing. From here, I have on

my right a small place, which is a continuation of the Parade Place; and at the end of this, near the wall, I see St. Peter's Church, or the Wall-street Church, as it is sometimes called. This church has a green yard before it, planted with trees, which is called the Wall Church Yard. St. Peter's Church is the oldest church in the city; it has a little round tower, which looks green, because it is mostly covered with copper, which is made green by exposure to the weather. When I go out of the school-house to the lower part of Little Cathedral street, by the Coal-market, through Shoe street and Carriage street, I come to the Castle. The Castle is a large building, with two small towers, and is built around a square yard, which is called the Castle-yard. In the Castle there are two churches, and the King and his Ministers of State, and the Judges of the Supreme Court, and the Consistory of the Church, hold their meetings there. From the Coal-market, I go through Shoe street to the Hay-market, and adjoining this is the New-market, which was formed after St. Nicholas's Church was burnt, which formerly stood in that place. Between the Hay-market and the New-market is the City Hall, where the officers and magistrates of the city hold their meetings."

If a garden is given to a class for a lesson, they are asked the size of the garden; its shape, which they may draw on a slate with a pencil; whether there are trees in it; what the different parts of a tree are; what parts grow in the spring, and what parts decay in autumn, and what parts remain the same throughout the winter; whether any of the trees are fruit trees; what fruits they bear; when they ripen; how they look and taste; whether the fruit be wholesome or otherwise; whether it is prudent to eat much of it; what plants and roots there are in the garden, and what use is made of them; what flowers there are, and how they look, &c. The teacher may then read them the description of the garden of Eden in the second chapter of Genesis—sing a hymn with them, the imagery of which is taken from the fruits and blossoms of a garden, and explain to them how kind and bountiful God is, who gives us such wholesome plants and fruits, and such beautiful flowers for our nourishment and gratification.

The external heavens also make an interesting lesson. The sky—its appearance and color at different times; the clouds—their color, their varying form and movements; the sun—its rising and setting, its concealment by clouds, its warming the earth and giving it life and fertility, its great heat in summer, and the danger of being exposed to it unprotected; the moon—its appearance by night, full, gibbous, horned; its occasional absence from the heavens; the stars—their shining, difference among them, their number, distance from us, &c. In this connection the teacher may read to them the eighteenth and nineteenth Psalms, and other passages of Scripture of that kind, sing with them a hymn celebrating the glory of God in the creation, and enforce the moral bearing of such contemplations by appropriate remarks. A very common lesson is, the family and family duties, love to parents, love to brothers and sisters, concluding with appropriate passages from Scripture, and singing a family hymn.

2. Elements of reading.

After a suitable time spent in the exercises above described, the children proceed to learn the elements of reading. The first step is to exercise the organs of sound till they have perfect command of their vocal powers; and this, after the previous discipline in conversation and singing, is a task soon accomplished. They are then taught to utter distinctly all the vowel sounds. The characters or letters representing these sounds are then shown and described to them, till the form and power of each are distinctly impressed upon their memories. The same process is then gone through in respect to diphthongs and consonants. Last of all, after having acquired a definite and distinct view of the different sounds, and of the forms of the letters which respectively represent these sounds, they are taught the names of these letters, with the distinct understanding that the *name* of a letter and the *power* of a letter are two very different things.

They are now prepared to commence reading. The letters are printed in large form, on square cards; the class stands up before a sort of rack; the teacher holds the cards in his hand, places one upon the rack, and a conversation of this kind passes between him and his pupils: What letter is that? H. He places another on the rack. What letter is that? A. I now put these two letters together, thus, (moving the cards close together,) HA. What sound do these two letters signify? Ha. There is another letter. What letter is that? (putting it on

the rack.) R. I now put this third letter to the other two, thus, HAR. What sound do the three letters make? *Har*. There is another letter. What is it? D. I join this letter to the other three, thus, HARD. What do they all make? *Hard*. Then he proceeds in the same way with the letters F-I-S-T; joins these four letters to the preceding four, HARD-FIST, and the pupils pronounce, *Hard-fist*. Then with the letters E and D, and joins these two to the preceding eight, and the pupils pronounce, *Hard-fisted*. In this way they are taught to read words of any length, (for you may easily add to the above, N-E-S-S, and make *Hard-fistedness*)—the longest as easily as the shortest; and in fact they learn their letters; they learn to read words of one syllable and of several syllables, and to read in plain reading, by the same process, at the same moment. After having completed a sentence, or several sentences, with the cards and rack, they then proceed to read the same words and sentences in their spelling-books.

3. Elements of writing.

The pupils are first taught the right position of the arms and body in writing, the proper method of holding the pen, &c.; and are exercised on these points till their habits are formed correctly. The different marks used in writing are then exhibited to them, from the simple point or straight line, to the most complex figure. The variations of form and position which they are capable of assuming, and the different parts of which the complex figures are composed, are carefully described, and the student is taught to imitate them, beginning with the most simple; then the separate parts of the complex, then the joining of the several parts to a whole, with his pencil and slate. After having acquired facility in this exercise, he is prepared to write with his ink and paper. The copy is written upon the blackboard; the paper is laid before each member of the class, and each has his pen ready in his hand, awaiting the word of his teacher. If the copy be the simple point, or line |, the teacher repeats the syllable *one, one*, slowly at first, and with gradually increasing speed, and at each repetition of the sound the pupils write. In this way they learn to make the mark both correctly and rapidly. If the figure to be copied consists of two strokes, (thus, 7,) the teacher pronounces *one, two—one, two*, slowly at first, and then rapidly, as before; and the pupils make the first mark, and then the second, at the sound of each syllable, as before. If the figure consist of three strokes, (thus, 4,) the teacher pronounces *one, two, three*, and the pupils write as before. So when they come to make letters, the letter *a* has five strokes, thus, *a*. When that is the copy, the teacher says, deliberately, *one, two, three, four, five*, and at the sound of each syllable the different strokes composing the letter are made; the speed of utterance is gradually accelerated, till finally the *a* is made very quickly, and at the same time neatly. By this method of teaching, a plain, neat, and quick hand, is easily acquired.

4. Elements of number, or arithmetic.

In this branch of instruction I saw no improvements in the mode of teaching not already substantially introduced into the best schools of our own country. I need not, therefore, enter into any details respecting them, excepting so far as to say that the student is taught to demonstrate, and perfectly to understand, the reason and nature of every rule before he uses it.

II. *Second part—children from eight to ten years of age.*

1. Exercises in reading.

The object of these exercises, in this part of the course, is to acquire the habit of reading with accuracy and readiness, with due regard to punctuation, and with reference to orthography. Sometimes the whole class read together, and sometimes an individual by himself, in order to accustom them to both modes of reading, and to secure the advantages of both. The sentence is first gone through with in the class, by distinctly spelling each word as it occurs; then by pronouncing each word distinctly without spelling it; a third time by pronouncing the words and mentioning the punctuation points as they occur. A fourth time, the sentence is read with the proper pauses indicated by the punctuation points, without mentioning them. Finally, the same sentence is read with particular attention to the intonations of the voice. Thus one thing is taken at a time, and pupils must become thorough in each as it occurs, before they proceed to the next. One great benefit of the class reading together is, that each individual has the same amount of exercise as if he were the only one under instruction, his attention

can never falter, and no part of the lesson escapes him. A skillful teacher, once accustomed to this mode of reading, can as easily detect any fault, mispronunciation, or negligence, in any individual, as if that individual were reading alone.

The process is sometimes shortened, and the sentence read only three times, namely: "according to the words, according to the punctuation, according to the life."

2. Exercises in writing.

The pupils proceed to write copies in joining-hand, both large and small, the principles of teaching being essentially as described in the first part of the course. The great object here is, to obtain a neat, swift, business hand. Sometimes, without a copy, they write from the dictation of the teacher; and in most cases instruction in orthography and punctuation is combined with that in penmanship. They are also taught to make and mend their own pens, and in doing this to be economical of their quills.

3. Religious and moral instruction in select Bible narratives.

In this branch of teaching the methods are various, and the teacher adopts the method best adapted, in his judgement, to the particular circumstances of his own school, or to the special objects which he may have in view with a particular class. Sometimes he calls the class around him, and relates to them in his own language, some of the simple narratives of the Bible, or reads it to them in the words of the Bible itself, or directs one of the children to read it aloud; and then follows a friendly, familiar conversation between him and the class respecting the narrative; their little doubts are proposed and resolved, their questions put and answered, and the teacher unfolds the moral and religious instruction to be derived from the lesson, and illustrates it by appropriate quotations from the didactic and preceptive parts of the Scripture. Sometimes he explains to the class a particular virtue or vice, a truth or a duty; and after having clearly shown what it is, he takes some Bible narrative which strongly illustrates the point in discussion, reads it to them, and directs their attention to it, with special reference to the preceding narrative.

A specimen or two of these different methods will best show what they are.

(a) Read the narrative of the birth of Christ, as given by Luke, ii. 1-20. Observe, Christ was born for the salvation of men, so also for the salvation of children. Christ is the children's friend. Heaven rejoices in the good of men. Jesus, though so great and glorious, makes his appearance in a most humble condition. He is the teacher of the poor, as well as of the rich.

With these remarks compare other texts of the Bible.

Jno. iii. 16. "For God so loved the world that he gave his only begotten Son, that whosoever believeth in him should not perish, but have everlasting life."

1. Jno. iv. 9. "In this was manifested the love of God toward us; because that God sent his only begotten Son into the world, that we might live through him."

Mark x. 14, 15. "But when Jesus saw it he was much displeased, and said unto them, Suffer little children to come unto me, for of such is the kingdom of God. Verily I say unto you, whosoever shall not receive the kingdom of God as a little child, he shall not enter therein."

And the lesson is concluded with singing a Christmas hymn.

Jesus feeds five thousand men: Jno. vi. 1-14.

God can bless a little so that it will do great good.

Economy suffers nothing to be lost—other texts: Ps. cxlv. 15, 16.

"The eyes of all wait upon thee; and thou givest them their meat in due season."

"Thou openest thy hand, and satisfiest the desire of every living thing."

Matt. vi. 31-33. "Therefore take no thought, saying, what shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed? (for after all these things do the Gentiles seek;) for your heavenly Father knoweth that ye have need of all these things. But seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you."

Story of Cain and Abel. Gen. iv. 1-16.

Remarks.—Two men may do the same thing externally, and yet the merit of their acts be very different. God looks at the heart. Be careful not to cherish envy or ill will in the heart. You know not to what crimes they may lead you. Remorse and misery of the fratricide—other texts. Matt. xv. 19. Heb. xi. 4. 1 Jno. iii. 12. Job. xxiv. 32.

"For out of the heart proceed evil thoughts, murders, adulteries, fornications, thefts, false witness, blasphemies."

"By faith Abel offered unto God a more excellent sacrifice than Cain, by which he obtained witness that he was righteous, God testifying of his gifts: and by it he, being dead, yet speaketh."

"Not as Cain, who was of that wicked one, and slew his brother. And wherefore slew he him? Because his own works were evil, and his brother's righteous."

Story of Jesus in the temple. Luke ii. 41-52.

Jesus in his childhood was very fond of learning, (he heard and asked questions.) God's word was his delight, he understood what he heard and read, (men were astonished at his understanding and answers.) He carefully obeyed his parents, (he went with them and was subject to them.) And as he grew up, his good conduct endeared him to God and man. Other texts. Eph. vi. 1-4. Prov. iii. 1-4.

"Children! obey your parents in the Lord; for this is right. Honor thy father and mother, (which is the first commandment with promise,) that it may be well with thee, and thou mayest live long on the earth. And ye fathers! provoke not your children to wrath, but bring them up in the nurture and admonition of the Lord."

"My son, forget not my law; but let thine heart keep my commandments: For length of days, and long life, and peace, shall they add to thee. Let not mercy and truth forsake thee: bind them about thy neck; write them upon the table of thine heart: So shalt thou find favor and good understanding in the sight of God and man."

On the other mode of teaching, the teacher, for example, states the general truth, that God protects and rewards the good, and punishes the bad. In illustration of this he reads to them the narrative of Daniel in the lions' den, and the death which overtook his wicked accusers. Dan. vi. In illustration of the same truth, the escape of Peter, and the miserable death of his persecutor, Herod, may be read. Acts xii.

The teacher may impress upon the mind of his class, that diligence, scrupulous fidelity, and conscientious self-control, are the surest guarantees of success in life; and, in illustration of the statement, read the narrative of Joseph's conduct in his master's house in Egypt, and in the prison, and the results of it. Gen. xxxix. So, also, various incidents in the life of Jesus may be used to great advantage in illustrating different virtues.

It is recommended that the teacher employ, in his instructions, the translation of the Scriptures in general use among the people; but that he occasionally take the original Scriptures and read to the children, in his own translation, and sometimes use simple translations from different authors, that children may early learn to notice the diversities in different faithful translations, and see what they really amount to.

It is scarcely necessary to observe, that a teacher who understands his business, and is faithful to his trust, will scrupulously abstain from sectarian peculiarities, or from casting odium on the tenets of any of the Christian denominations. A man who has not magnanimity or enlargement of mind enough for this, is not fit to be employed as a teacher, even in the humblest branches of knowledge.

4. Language, or grammar.

The knowledge of the native tongue, the ability to use it with correctness, facility, and power, is justly regarded as one of the most important branches of common school instruction. It is the principal object of the *logical exercises*, or, as they may be justly termed, *the exercises in thinking and speaking*, already described as the first subject of study in the first part of the course, before the child has begun to use his book at all.

In this second part of the course, grammar is taught directly and scientifically, yet by no means in a dry and technical manner. On the contrary, technical terms are carefully avoided, till the child has become familiar with the nature and use of the things designated by them, and he is able to use them as the names of ideas which have a definite existence in his mind, and not as awful sounds, dimly shadowing forth some mysteries of science into which he has no power to penetrate.

The first object is to illustrate the different parts of speech, such as the noun, the verb, the adjective, the adverb; and this is done by engaging the pupil in conversation, and leading him to form sentences in which the particular parts of speech to be learned shall be the most important word, and directing his attention to the nature and use of the word in the place where he uses it. For example, let us suppose the nature and use of the adverb are to be taught. The teacher

writes upon the blackboard the words "here, there, near," &c. He then says, "Children, we are all together in this room; by which of the words on the blackboard can you express this?" *Children.* "We are all *here*." *Teacher.* "Now look out of the window and see the church; what can you say of the church with the second word on the blackboard?" *Children.* "The church is *there*." *Teacher.* "The distance between us and the church is not great; how will you express this by a word on the blackboard?" *Children.* "The church is *near*." The fact that these different words express the same sort of relations is then explained, and, accordingly, that they belong to the same class, or are the same part of speech. The variations of these words are next explained. "Children, you say the church is near, but there is a shop between us and the church; what will you say of the shop?" *Children.* "The shop is *nearer*." *Teacher.* "But there is a fence between us and the shop. Now when you think of the distance between us, the shop and the fence, what will you say of the fence?" *Children.* "The fence is *nearest*." So of other adverbs. "The lark sings *well*. Compare the singing of the lark with that of the canary bird. Compare the singing of the nightingale with that of the canary bird." After all the different sorts of adverbs and their variations have in this way been illustrated, and the pupils understand that all words of this kind are called *adverbs*, the definition of the adverb is given as it stands in the grammar, and the book is put into their hands to study the chapter on this topic. In this way the pupil understands what he is doing at every step of his progress, and his memory is never burdened with mere names, to which he can attach no definite meaning.

The mode of teaching the subsequent branches is founded on the same general principles, and it may not be necessary to give particular examples.

5. Numbers, or arithmetic.

6. Doctrine of space and form, or geometry.

7. Singing by note, or elements of music.

The method of teaching music has already been successfully introduced into our own State, and whoever visits the schools of Messrs. Mason or Solomon, in Cincinnati, will have a much better idea of what it is than any description can give; nor will any one who visits these schools entertain a doubt that all children from six to ten years of age, who are capable of learning to read, are capable of learning to sing, and that this branch of instruction can be introduced into all our common schools with the greatest advantage, not only to the comfort and discipline of the pupils, but also to their progress in their other studies.

The students are taught from the blackboard. The different sounds are represented by lines of different lengths, by letters, by figures, and by musical notes; and the pupils are thoroughly drilled on each successive principle before proceeding to the next.

III. *Third part, of two years—children from ten to twelve.*

1. Exercises in reading and elocution.

The objects of these exercises, in this part of the course, is to accustom the pupils to read in a natural and impressive manner, so as to bring the full force of the sentiment on those to whom they read. They are examined in modulation, emphasis, and the various intonations, and they often read sentences from the blackboard in which the various modulations are expressed by musical notes or curved lines.

The evils of drawing and monotone are prevented in the outset by the method of teaching, particularly the practice of the whole class reading together and keeping time. Short and pithy sentences, particularly the Book of Proverbs, are recommended as admirably adapted to exercises of this kind.

2. Ornamental writing, introductory to drawing.

The various kinds of ornamental letters are here practiced upon, giving accuracy to the eye and steadiness to the hand, preparatory to skill in drawing, which comes into the next part of the course. The pupils also practice writing sentences and letters, with neatness, rapidity, and correctness.

3. Religious instruction in the connected Bible history.

The design here is to give to the student a full and connected view of the whole Bible history. For this purpose large tables are made out and hung before the students. These tables are generally arranged in four columns, the first containing the names of the distinguished men during a particular period of Bible history;

the second, the dates; the third, a chronological register of events; and the fourth, the particular passages of the Bible where the history of these persons and events may be found. With these tables before the pupils, the teacher himself, in his own words, gives a brief conversational outline of the principal characters and events within a certain period, and then gives directions that the scriptural passages referred to be carefully read. After this is done, the usual recitation and examination takes place. Some of the more striking narratives, such as the finding of Moses on the banks of the Nile; Abraham offering his son; the journey of the wise men to do homage to Christ; the crucifixion; the conversion of Paul, &c., are committed to memory in the words of the Bible, and the recitation accompanied with the singing of a hymn alluding to these events. The moral instruction to be derived from each historical event is carefully impressed by the teacher. The teacher also gives them a brief view of the history between the termination of the Old and the commencement of the New Testament, that nothing may be wanting to a complete and systematic view of the whole ground. Thus the whole of the historical part of the Bible is studied thoroughly, and systematically, and practically, without the least sectarian bias, and without a moment being spent on a single idea that will not be of the highest use to the scholar during all his future life.

4. Language and grammar.

There is here a continuation of the exercises in the preceding parts of the course, in a more scientific form, together with parsing of connected sentences, and writing from the dictation of the teacher, with reference to grammar, orthography, and punctuation. The same principal alluded to before, of avoiding technical terms till the things represented by those terms are clearly perceived, is here carefully adhered to. A single specimen of the manner in which the modes and tenses of the verb are taught may be sufficient to illustrate my meaning. The teacher writes on the blackboard a simple sentence, as, "The scholars learn well;" and asks the class what sort of a sentence it is. They reply that it is a direct statement of a fact. (Teach.) Put it in the form of a command. (Class.) Scholars, learn well! (Teach.) Put it in a question form. (Class.) Do the scholars learn well? (Teach.) Of a wish. (Class.) May the scholars learn well! (Teach.) Of an exclamation. (Class.) How well the scholars learn! (Teach.) The conditional form. (Class.) If the scholars learn well; or, should the scholars learn well. (Teach.) Of necessity. (Class.) The scholars must learn well. (Teach.) Of ability. (Class.) The scholars can learn well, &c., &c. They are then taught that the direct statement is called the indicative mode of the verb; the command, the imperative mode; the conditional, the subjunctive mode; the wish, the potential mode, &c., &c.; and after this, the book is put into their hands, and they study their lesson as it stands. After this the different tenses of the several modes are taught in the same way.

5. Real instruction, or knowledge of Nature and the external world, including the first elements of the natural sciences, the arts of life, geography, and history. Instruction on this head is directed to the answering of the following questions, namely:

(a) What is man, as it respects his corporeal and intellectual nature?

Here come anatomy and physiology, so far as the structure of the human body is concerned, and the functions of its several parts.

Also the simple elements of mental philosophy. In this connection appropriate texts of Scripture are quoted, as Gen. ii. 7. Ps. cxxxix. 14-16. An appropriate hymn is also sung.

"And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul."

"I will praise thee: for I am fearfully and wonderfully made: marvellous are thy works; and that my soul knoweth right well. My substance was not hid from thee, when I was made in secret, and curiously wrought in the lowest parts of the earth. Thine eyes did see my substance, yet being imperfect; and in thy book all my members were written, which in continuance were fashioned, when as yet there was none of them."

(b) What does man need for the preservation and cheerful enjoyment of life, as it respects his body and mind? For his body he needs *food*; the different kinds of food, and the mode of preparing them, are here brought to view; the unwholesomeness of some kinds of food; injuriousness of improper food; cooking;

evils of gluttony. The different kinds of clothing and modes of preparing them ; what sort of dress is necessary to health ; folly and wickedness of vanity and extravagance. *Dwellings*, materials of which houses are constructed ; mode of constructing them ; different trades employed in their construction.

For the mind, man needs *society*, the family and its duties ; the neighborhood and its duties. Intellectual, moral, and religious cultivation ; the school and its duties ; the church and its duties. For the body and mind both, he needs *security* of person and property ; the government ; the legislature ; the courts, &c.

(c) Where and how do men find the means to supply their wants, and make themselves comfortable and happy in this life ?

The vegetable, the mineral, and the animal kingdoms are here brought to view, for materials ; together with agriculture and manufactures, as the means of converting these materials to our use. Geography, with special reference to the productions of countries, and their civil, literary, and religious institutions ; towns, their organization and employments. Geography is sometimes taught by blank charts, to which the students are required to affix the names of the several countries, rivers, mountains, principal towns, &c., and then state the productions and institutions for which they are remarkable. Sometimes the names of countries, rivers, &c., are given, and the pupil is required to construct an outline chart of their localities.

In respect to all the above points, the native country is particularly studied ; its capabilities, its productions, its laws, its institutions, its history, &c., are investigated, with especial reference to its ability of supplying the physical, social, and moral wants of its inhabitants. Under this head the pupils are taught to appreciate their native country, to venerate and love its institutions, to understand what is necessary to their perfection, and to imbibe a spirit of pure and generous patriotism. It is scarcely necessary to add, that all the instruction under this fifth head is confined to the fundamental and simplest principles of the several branches referred to.

6. Arithmetic, continued through fractions and the rules of proportion.

7. Geometry, doctrine of magnitudes and measures.

8. Singing, and science of vocal and instrumental music.

IV. *Fourth part, of two years—children from twelve to fourteen.*

1. Religious instruction, in the religious observation of Nature, the life and discourses of Jesus Christ, the history of the Christian religion, in connection with the cotemporary civil history, and the principal doctrines of the Christian system.

The first topic of instruction mentioned under this head is one of peculiar interest and utility. The pupils are taught to observe, with care and system, the various powers and operations of Nature, and to consider them as so many illustrations of the wisdom, power, and goodness of the Creator ; and at each lesson they are directed to some appropriate passage of the Bible, which they read and commit to memory : and thus the idea is continually impressed on them, that the God of Nature and the God of the Bible are one and the same Being.

For example, as introductory to the whole study, the first chapter of Genesis, together with some other appropriate passage of Scripture, as the 147th Psalm, or the 38th chapter of Job, may be read and committed to memory. The surface of the earth, as illustrating the power and wisdom of God, may be taken as a lesson. Then the varieties of surface, as mountains, valleys, oceans and rivers, continents and islands, the height of mountains, the breadth of oceans, the length of rivers, remarkable cataracts, extended caverns, volcanoes, tides, &c., may be taken into view, and the teacher may impress upon the class the greatness, power, and intelligence necessary for such a creation. The whole is fortified by the application of such a passage as Psalm civ. 1-13.

"Bless the Lord, O my soul ! O Lord my God ! thou art very great ; thou art clothed with honor and majesty. Who coverest thyself with light as with a garment : who stretchest out the heavens like a curtain : who layeth the beams of his chambers in the waters : who maketh the clouds his chariot : who walketh upon the wings of the wind : who maketh his angels spirits ; his ministers a flaming fire. Who laid the foundations of the earth, that it should not be removed forever. Thou coverest it with the deep as with a garment : the waters stood above the mountains. At thy rebuke they fled : at the voice of thy thunder they hasted away. They go up by the mountains ; they go down by the valleys unto the place which thou hast founded for them. Thou hast set a bound that they may not pass over ; that they turn not again to cover the earth. He sendeth the springs into the valleys,

which run among the hills. They give drink to every beast of the field; the wild asses quench their thirst. By them shall the fowls of the heaven have their habitation, which sing among the branches. He watereth the hills from his chambers: the earth is satisfied with the fruit of thy works."

"O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches. So is this great and wide sea, wherein are things creeping innumerable, both small and great beasts. There go the ships: there is that leviathan, whom thou hast made to play therein."

The fruitfulness and beauty of the earth, as illustrating the wisdom and goodness of God, may serve as another lesson. Here may be exhibited the beauty and variety of the plants and flowers with which the earth is adorned; the manner of their growth and self-propagation, their utility to man and beast, their immense number and variety, their relations to each other as genera and species; trees and their varieties, their beauty and utility, their timber and their fruit; and, in connection with this lesson, Psalm civ. 14-34 may be committed to memory.

"He causeth the grass to grow for the cattle, and herb for the service of man: that he may bring forth food out of the earth; and wine that maketh glad the heart of man, and oil to make his face to shine, and bread which strengtheneth man's heart. The trees of the Lord are full of sap; the cedars of Lebanon, which he hath planted; where the birds make their nests; as for the stork, the fir trees are her house. The high hills are a refuge for the wild goats; and the rocks for the conies. He appointeth the moon for seasons: the sun knoweth his going down. Thou maketh darkness, and it is night: wherein all the beasts of the forest do creep forth. The young lions roar after their prey, and seek their meat from God. The sun ariseth, they gather themselves together, and lay them down in their dens. Man goeth forth unto his work and to his labor until the evening."

"These wait all upon thee; that thou mayest give them their meat in due season. That thou givest them they gather; thou openest thine hand, they are filled with good. Thou hidest thy face, they are troubled: thou takest away their breath, they die, and return to their dust. Thou sendest forth thy Spirit, they are created: and thou renewest the face of the earth. The glory of the Lord shall endure forever: the Lord shall rejoice in his works. He looketh on the earth, and it trembleth: he toucheth the hills, and they smoke. I will sing unto the Lord as long as I live: I will sing praise to my God while I have my being. My meditation of him shall be sweet: I will be glad in the Lord."

In like manner, the creation and nourishment, the habits and instincts of various animals may be contemplated, in connection with Proverbs vi. 6-8; Psalm civ. 17-22; Proverbs xxx. 24-31; Gen. i. 20-24; Psalm cxlv. 15-16.

"Go to the ant, thou sluggard! consider her ways, and be wise: Which having no guide, overseer, or ruler, provideth her meat in the summer, and gathereth her food in the harvest."

"There be four things which are little on the earth, but they are exceeding wise: the ants are a people not strong, yet they prepare their meat in the summer; the conies are but a feeble folk, yet make they their houses in the rocks; the locusts have no king, yet go they forth all of them by bands; the spider taketh hold with her hands, and is in kings' palaces. There be three things which go well, yea, four are comely in going: a lion, which is strongest among beasts, and turneth not away for any: a grayhound; a he-goat also; and a king, against whom there is no rising up."

"And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beasts of the earth after his kind: and it was so. And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good."

"The eyes of all wait upon thee; and thou givest them their meat in due season. Thou openest thine hand, and satisfiest the desire of every living thing. The Lord is righteous in all his ways, and holy in all his works."

The phenomena of light and color, the nature of the rainbow, &c., may make another interesting lesson, illustrating the unknown forms of beauty and glory which exist in the Divine Mind, and which He may yet develop in other and still more glorious worlds; in connection with Gen. i. 3, 5, 9, 13, 14, and other passages of like kind.

So the properties of the air, wind, and storm, Job xxviii. 25; xxxviii. 33, 34, 35. Psalm cxlviii. 8.

"Knowest thou the ordinance of heaven? canst thou set the dominion thereof in the earth? Canst thou lift up thy voice to the clouds, that abundance of waters may cover thee? Canst thou send lightnings, that they may go, and say unto thee, Here we are? Who hath put wisdom in the inward parts? or who hath given understanding to the heart? Who can number the clouds in wisdom? or who can stay the bottles of heaven?"

Then the heavens, the sun, moon, planets, fixed stars, and comets, the whole science of astronomy, so far as it can be introduced with advantage into common schools, can be contemplated in the same way. The enlightening, elevating, and purifying moral influence of such a scheme of instruction, carried through the

whole system of Nature, must be clearly obvious to every thinking mind; and its utility, considered merely with reference to worldly good, is no less manifest.

The second topic of religious instruction is more exclusively scriptural. The life of Christ, and the history of the apostles, as given in the New Testament, are chronologically arranged, and tables formed as before. (III. 3.) The discourses of Christ are examined and explained in their chronological arrangement, and in the same way the discourses and epistles of the apostles. The history of Christianity, in connection with the cotemporary civil history, is taught in a series of conversational lectures. To conclude the whole course of religious instruction, a summary of the Christian doctrine is given in the form of some approved catechism.

2. Knowledge of the world and of mankind, including civil society, constitutional law, agriculture, mechanic arts, manufactures, &c.

This is a continuation and completion, in a more systematic form, of the instruction commenced in III. 5. The course begins with the family, and the first object is to construct a habitation. The pupil tells what materials are necessary for this purpose, where they are to be found, how brought together and fitted into the several parts of the building. The house must now be furnished. The different articles of furniture and their uses are named in systematic order, the materials of which they are made, and the various trades employed in making them are enumerated. Then comes the garden, its tools and products, and whatever else is necessary for the subsistence and physical comfort of a family. Then the family duties and virtues; parental and filial obligation and affection; rights of property; duties of neighborhoods; the civil relations of society; the religious relations of society; the state, the father-land, &c.; finally, geography, history, and travels. Books of travels are compiled expressly for the use of schools, and are found to be of the highest interest and utility.

3. Language, and exercises in composition.

The object here is to give the pupils a perfect command of their native tongue, and ability to use it on all occasions with readiness and power. The first exercises are on simple questions, such as—"Why ought children to love and obey their parents?" or they are short descriptions of visible objects, such as a house, a room, a garden, &c. There are also exercises on the various forms of expressing the same idea, as, "The sun enlightens the earth." "The earth is enlightened by the sun." "The sun gives light to the earth." "The earth receives light from the sun." "The sun is the source of light to the earth." "The sun sends out its rays to enlighten the earth." "The earth is enlightened by rays sent out from the sun," &c. There are exercises also of the same sort on metaphors and other figures of speech. Familiar letters are then written, and short essays on themes such as may be furnished by texts from the Book of Proverbs, and other sentences of the kind; and thus gradual advancement is made to all the higher and graver modes of composition.

4. Application of arithmetic and the mathematics to the business of life, including surveying, civil engineering, &c.

The utility of this branch of instruction, and the mode of it, after what has already been said, are probably too obvious to need any further illustration.

5. Elements of drawing.

For this the pupils have already been prepared by the exercises in ornamental writing, in the previous part of the course. They have already acquired that accuracy of sight and steadiness of hand which are among the most essential requisites to drawing well. The first exercises are in drawing lines, and the most simple mathematical figures, such as the square, the cube, the triangle, the parallelogram; generally from wooden models, placed at some little distance on a shelf, before the class. From this they proceed to architectural figures, such as doors, windows, columns, façades. Then the figures of animals, such as a horse, a cow, an elephant; first from other pictures, and then from Nature. A plant, a rose, or some flower is placed upon a shelf, and the class make a picture of it. From this they proceed to landscape painting, historical painting, and the higher branches of the art, according to their time and capacity. All learn enough of drawing to use it in the common business of life, such as plotting a field, laying out a canal, or drawing the plan of a building; and many attain to a high degree of excellence.

6. Exercises in singing, and the science of music.

The instructions of the previous parts are extended as far as possible, and include singing and playing at sight, and the more abstruse and difficult branches of the science and art of music.

The following extracts from Hon. Horace Mann's Seventh Annual Report to the Board of Education in Massachusetts, will supply some deficiencies in the foregoing sketch, and, at the same time, present the impressions of another observer.

CLASSIFICATION.

The first element of superiority in a Prussian school, and one whose influence extends throughout the whole subsequent course of instruction, consists in the proper classification of the scholars. In all places where the numbers are sufficiently large to allow it, the children are divided according to ages and attainments; and a single teacher has the charge only of a single class, or of as small a number of classes as is practicable. I have before adverted to the construction of the school-houses, by which, as far as possible, a room is assigned to each class. Let us suppose a teacher to have the charge of but one class, and to have talent and resources sufficient properly to engage and occupy its attention, and we suppose a perfect school. But how greatly are the teacher's duties increased, and his difficulties multiplied, if he have four, five, or half a dozen classes, under his personal inspection. While attending to the recitation of one, his mind is constantly called off, to attend to the studies and the conduct of all the others. For this, very few teachers amongst us have the requisite capacity; and hence the idleness and the disorder that reign in so many of our schools, excepting in cases where the debasing motive of fear puts the children in irons. All these difficulties are at once avoided by a suitable classification; by such a classification as enables the teacher to address his instructions at the same time to all the children who are before him, and to accompany them to the play-ground, at recess or intermission, without leaving any behind who might be disposed to take advantage of his absence. All this will become more and more obvious as I proceed with a description of exercises. There is no obstacle whatever, save prescription, and that *vis inertia* of mind which continues in the beaten track because it has not vigor enough to turn aside from it, to the introduction, at once, of this mode of dividing and classifying scholars, in all our large towns.

METHOD OF TEACHING YOUNG CHILDREN ON THEIR FIRST ENTERING SCHOOL.

In regard to this as well as other modes of teaching, I shall endeavor to describe some particular lessons that I heard. The Prussian and Saxon schools are all conducted substantially upon the same plan, and taught in the same manner. Of course, there must be those differences to which different degrees of talent and experience give rise.

About twenty years ago, teachers in Prussia made the important discovery that children have five senses, together with various muscles and mental faculties, all which, almost by a necessity of their nature, must be kept in a state of activity, and which, if not usefully, are liable to be mischievously employed. Subsequent improvements in the art of teaching have consisted in supplying interesting and useful, instead of mischievous occupation, for these senses, muscles, and faculties. Experience has now proved that it is much easier to furnish profitable and delightful employment for all these powers, than it is to stand over them with a rod and stifle their workings, or to assume a thousand shapes of fear to guard the thousand avenues through which the salient spirits of the young play outward. Nay, it is much easier to keep the eye, and hand, and mind at work together, than it is to employ any one of them separately from the others. A child is bound to the teacher by so many more cords, the more of his natural capacities the teacher can interest and employ.

In the case I am now to describe, I entered a class-room of sixty children, of about six years of age. The children were just taking their seats, all smiles and expectation. They had been at school but a few weeks, but long enough to have contracted a love for it. The teacher took his station before them, and after

making a playful remark which excited a light titter around the room, and effectually arrested attention, he gave a signal for silence. After waiting a moment, during which every countenance was composed and every noise hushed, he made a prayer consisting of a single sentence, asking that as they had come together to learn, they might be good and diligent. He then spoke to them of the beautiful day, asked what they knew about the seasons, referred to the different kinds of fruit-trees then in bearing, and questioned them upon the uses of trees in constructing houses, furniture, &c. Frequently he threw in sportive remarks which enlivened the whole school, but without ever producing the slightest symptom of disorder. During the familiar conversation, which lasted about twenty minutes, there was nothing frivolous or trifling in the manner of the teacher; that manner was dignified though playful, and the little jets of laughter which he caused the children occasionally to throw out, were much more favorable to a receptive state of mind than jets of tears.

Here I must make a preliminary remark, in regard to the equipments of the scholars and the furniture of the school-room. Every child has a slate and pencil, and a little reading book of letters, words, and short sentences. Indeed, I never saw a Prussian or Saxon school, above an infant school, in which any child was unprovided with a slate and pencil. By the teacher's desk, and in front of the school, hung a blackboard. The teacher first drew a house upon the blackboard; and here the value of the art of drawing, a power universally possessed by Prussian teachers, became manifest. By the side of the drawing and under it, he wrote the word *house* in the German script hand, and printed it in the German letter. With a long pointing rod, the end being painted white to make it more visible, he ran over the form of the letters, the children, with their slates before them and their pencils in their hands, looking at the pointing rod and tracing the forms of the letters in the air. In all our good schools, children are first taught to imitate the forms of letters on the slate before they write them on paper; here they were first imitated on the air, then on slates, and subsequently, in older classes, on paper. The next process was to copy the word "house," both in script and in print, on their slates. Then followed the formation of the sounds of the letters of which the word was composed, and the spelling of the word. Here the *names* of the letters were not given as with us, but only their powers, or the sounds which those letters have in combination. The letter *h* was first selected and set up in the reading-frame, (the same before described as part of the apparatus of Prussian schools for young children,) instead of articulating our alphabetic *h*, (aitch,) merely gave a hard breathing; such a sound as the letter really has in the word "house." Then the diphthong, *au*, (the German word for "house" is spelled "haus,") was taken and sounded by itself, in the same way. Then the blocks containing *h*, and *au*, were brought together, and the two sounds were combined. Lastly, the letter *s* was first sounded by itself, then added to the others, and then the whole word was spoken. Sometimes the last letter in a word was first taken and sounded; after that the penultimate; and so on until the word was completed. The responses of the children were sometimes individual, and sometimes simultaneous, according to a signal given by the master.

In every such school, also, there are printed sheets or cards, containing the letters, diphthongs, and whole words. The children are taught to sound a diphthong, and then asked in what words that sound occurs. On some of these cards there are words enough to make several short sentences, and when the pupils are a little advanced, the teacher points to several isolated words in succession, which when taken together make a familiar sentence, and thus he gives them an agreeable surprise, and a pleasant initiation into reading.

After the word "house" was thus completely impressed upon the minds of the children, the teacher drew his pointing rod over the lines which formed the house; and the children imitated him, first in the air, while they were looking at his motions, then on their slates. In their drawings there was of course a great variety as to taste and accuracy; but each seemed pleased with his own, for their first attempts had never been so criticised as to produce discouragement. Several children were then called to the blackboard to draw a house with chalk. After this, the teacher entered into a conversation about houses. The first question was, what kind of a house was that on the blackboard? Then the names of other

kinds of houses were given. The materials of which houses are built were mentioned stone, brick, wood; the different kinds of wood; nails, and where they were made; lime, and whence it came, &c. &c. When the teacher touched upon points with which the children were supposed to be acquainted, he asked questions; when he passed to subjects beyond their sphere, he gave information, intermingling the whole with lively remarks and pleasant anecdotes.

And here one important particular should not be omitted. In this, as well as in all other schools, a complete answer was always required. For instance, if a teacher asks, "What are houses made of?" he does not accept the answer, "of wood" or "of stone;" but he requires a full, complete, (*vollständig*) answer; as, "a house may be made of wood." The answer must always contain an intelligible proposition without reference to the words of the question to complete it. And here also the greatest care is taken that the answer shall always be grammatically correct, have the right terminations of all articles, adjectives and nouns, and the right grammatical transpositions according to the idioms and structure of the language. This secures from the beginning, precision in the expression of ideas; and if, as many philosophers suppose, the intellect could never carry forward its processes of argument or investigation to any great extent, without using language as its instrument, then these children, in their primary lessons, are not only led to exercise the intellect, but the instrument is put into their hands by which its operations are facilitated.

When the hour had expired, I do not believe there was a child in the room who knew or thought that his play-time had come. No observing person can be at a loss to understand how such a teacher can arrest and retain the attention of his scholars. It must have happened to almost every one, at some time in his life, to be present as a member of a large assembly, when some speaker, in the midst of great uproar and confusion, has arisen to address it. If, in the very commencement of his exordium, he makes what is called a happy hit, which is answered by a response of laughter or applause from those who are near enough to hear it, the attention of the next circle will be aroused. If, then, the speaker makes another felicitous sally of wit or imagination, this circle too becomes the willing subject of his power; until, by a succession of flashes whether of genius or of wit, he soon brings the whole audience under his command, and sways it as the sun and moon sway the tide. This is the result of talent, of attainment, and of the successful study both of men and of things; and whoever has a sufficiency of these requisites will be able to command the attention of children, just as a powerful orator commands the attention of men. But the one no more than the other is the unbought gift of nature. They are the rewards of application and toil superadded to talent.

Now it is obvious that in the single exercise above described, there were the elements of reading, spelling, writing, grammar, and drawing, interspersed with anecdotes and not a little general information; and yet there was no excessive variety, nor were any incongruous subjects forcibly brought together. There was nothing to violate the rule of "one thing at a time."

Compare the above method with that of calling up a class of abecedarians; or, what is more common, a single child, and while the teacher holds a book or a card before him, and, with a pointer in his hand, says *a*, he echoes *a*; then *b*, and he echoes *b*; and so on until the vertical row of lifeless and ill-favored characters is completed, and then of remanding him to his seat, to sit still and look at vacancy. If the child is bright, the time which passes during this lesson is the only part of the day when he does not think. Not a single faculty of the mind is occupied except that of imitating sounds; and even the number of these imitations amounts only to twenty-six. A parrot or an idiot could do the same thing. And so of the organs and members of the body. They are condemned to inactivity; for the child who stands most like a post is most approved; nay, he is rebuked if he does not stand like a post. A head that does not turn to the right or left, an eye that lies moveless in its socket, hands hanging motionless at the side, and feet immovable as those of a statue, are the points of excellence, while the child is echoing the senseless table of *a, b, c*. As a general rule, six months are spent before the twenty-six letters are mastered, though the same child would learn the names of twenty-six playmates or twenty-six playthings in one or two days.

All children are pleased with the idea of a house, a hat, a top, a ball, a bird, an egg, a nest, a flower, &c.; and when their minds are led to see new relations or qualities in these objects, or when their former notions respecting them are brought out more vividly, or are more distinctly defined, their delight is even keener than that of an adult would be in obtaining a new fact in science, or in having the mist of some old doubt dispelled by a new discovery. Lessons on familiar objects, given by a competent teacher, never fail to command attention, and thus a habit of mind is induced of inestimable value in regard to all future study.

Again, the method I have described necessarily leads to conversation, and conversation with an intelligent teacher secures several important objects. It communicates information. It brightens ideas before only dimly apprehended. It addresses itself to the various faculties of the mind, so that no one of them ever tires or is cloyed. It teaches the child to use language, to frame sentences, to select words which convey his whole meaning, to avoid those which convey either more or less than he intends to express; in fine, it teaches him to seek for thoughts upon a subject, and then to find appropriate language in which to clothe them. A child trained in this way will never commit those absurd and ludicrous mistakes into which uneducated men of some sense not unfrequently fall, viz., that of mismatching their words and ideas; of hanging as it were, the garments of a giant upon the body of a pigmy, or of forcing a pigmy's dress upon the huge limbs of a giant. Appropriate diction should clothe just ideas, as a tasteful and substantial garb fits a graceful and vigorous form.

The above described exercise occupies the eye and the hand as well as the mind. The eye is employed in tracing visible differences between different forms, and the hand in copying whatever is presented, with as little difference as possible. And who ever saw a child that was not pleased with pictures, and an attempt to imitate them? Thus, the two grand objects so strenuously insisted upon by writers, in regard to the later periods of education and the maturer processes of thought, are attained, viz., the power of recognizing analogies and dissimilarities.

Having given an account of the reading lesson of a primary class, just after they had commenced going to school, I will follow it with a brief account of a lesson given to a more advanced class. The subject was a short piece of poetry describing a hunter's life in Missouri. It was first read, the reading being accompanied with appropriate criticisms as to pronunciation, tone, &c. It was then taken up verse by verse, and the pupils were required to give equivalent expressions in prose. The teacher then entered into an explanation of every part of it, in a sort of oral lecture, accompanied with occasional questions. This was done with the greatest minuteness. Where there was a geographical reference, he entered at large into geography; where a reference to a foreign custom, he compared it with their customs at home; and thus he explained every part, and illustrated the illustrations themselves, until, after an entire hour spent upon six four line verses, he left them to write out the sentiment and the story in prose, to be produced in school the next morning. All this was done without the slightest break or hesitation, and evidently proceeded from a mind full of the subject, and having a ready command of all its resources.

An account of one more lesson will close what I have to say on the subject of reading. The class consisted of young lads, belonging to a burgher school, which they were just about leaving. They had been reading a poem of Schiller; a sort of philosophical allegory; and when it was completed, the teacher called upon one of them to give a popular exposition of the meaning of the piece. The lad left his seat, stepped to the teacher's desk, and, standing in front of the school, occupied about fifteen or twenty minutes in an extemporaneous account of the poem, and what he supposed to be its meaning and moral.

ARITHMETIC AND MATHEMATICS.

Children are taught to cipher, or, if need be, to count, soon after entering school. I will attempt to describe a lesson which I saw given to a very young class. Blocks of one cube, two cubes, three cubes, &c., up to a block of ten cubes, lay upon the teacher's desk. The cubes on each block were distinctly

marked off, and differently colored, that is, if the first inch or cube was white, the next would be black. The teacher stood by his desk, and in front of the class. He set up a block of one cube, and the class simultaneously said *one*. A block of two cubes was then placed by the side of the first, and the class said *two*. This was done until the ten blocks stood by the side of each other in a row. They were then counted backward, the teacher placing his finger upon them, as a signal that their respective numbers were to be called. The next exercise was, "two comes after one, three comes after two," and so on to ten; and then backward, "nine comes before ten, eight comes before nine, and so of the rest. The teacher then asked, What is three composed of? *A*. Three is composed of one and two. *Q*. Of what else is three composed? *A*. Three is composed of three ones. *Q*. What is four composed of? *A*. Four is composed of four ones, of two and two, of three and one. *Q*. What is five composed of? *A*. Five is composed of five ones, of two and three, of two twos and one, of four and one. *Q*. What numbers compose six? seven? eight? nine? To the latter the pupil would answer, "Three threes make nine; two, three, and four make nine; two, two, and five make nine; three, four, and two make nine; three, five, and one make nine," &c., &c. The teacher then placed similar blocks side by side, while the children added their respective numbers together "two twos make four," "three twos make six," &c. The blocks were then turned down horizontally to show that three blocks of two cubes each were equal to one of six cubes. Such questions were then asked as, how many are six less than eight? five less than seven? &c. Then, how many are seven and eight? The answer was given thus: eight are one more than seven, seven and seven make fourteen, and one added makes fifteen; therefore eight and seven make fifteen. *Q*. How many are six and eight? *A*. Eight are two more than six, six and six make twelve, and two added makes fourteen. Or it might be thus: six are two less than eight, eight and eight are sixteen, two taken from sixteen leave fourteen, therefore eight and six are fourteen. They then counted up to a hundred on the blocks. Toward the close of the lesson, such questions as these were put, and readily answered: Of what is thirty-eight composed? *A*. Thirty-eight is composed of thirty and eight ones; of seven fives and three ones; or sometimes thus: of thirty-seven and one; of thirty-six and two ones; of thirty-five and three ones, &c. *Q*. Of what is ninety composed? *A*. Ninety is composed of nine tens, of fifty and forty, &c., &c.

Thus, with a frequent reference to the blocks, to keep up attention by presenting an object to the eye, the simple numbers were handled and transposed in a great variety of ways. In this lesson, it is obvious that counting, numeration, addition, subtraction, multiplication, and division were all included, yet there was no abstract rule, or unintelligible form of words given out to be committed to memory. Nay, these little children took the first steps in the mensuration of superficies and solids, by comparing the length and contents of one block with those of others.

When the pupils were a little further advanced, I usually heard lessons recited in this way: Suppose 4321 are to be multiplied by 25. The pupil says, five times one are five ones, and he sets down 5 in the unit's place; five times two tens, or twenty ones, are a hundred, and sets down a cipher in the ten's place; five times three hundred are one thousand and five hundred, and one hundred to be carried make one thousand six hundred, and sets down a 6 in the hundred's place; five times four thousand are twenty thousand, and one thousand to be carried make twenty-one thousand. The next figure in the multiplier is then taken, twenty times one are twenty, and a 2 is set down in the ten's place; twenty times two tens are four hundred, and a 4 is set down in the hundred's place; twenty times three hundred are six thousand, and a 6 is set down in the thousand's place; twenty times four thousand are eighty thousand, and an 8 is set down in the ten thousand's place. Then come the additions to get the product. Five ones are five, two tens are twenty, and these figures are respectively set down; four hundred and six hundred make a thousand, and a cipher is set down in the hundred's place; one thousand to be carried to six thousand makes seven thousand, and one thousand more makes eight thousand, and an 8 is set down in the thousand's place; eighty thousand and twenty thousand make one hundred thousand, and a cipher is set down in the ten thousand's place, and a 1 in the hundred

thousand's place. It is easy to see that where the multiplier and multiplicand are large, this process soon passes beyond mere child's play.

So in division. If 32756 are to be divided by 75, the pupil says, how many hundred times are seventy-five, or seventy-five ones, contained in thirty-two thousand and seven hundred, or in thirty-two thousand and seven hundred ones? four hundred times, and he sets down a 4 in the hundred's place in the quotient; then the divisor seventy-five is multiplied (as before) by the four hundred, and the product is set down under the first three figures of the dividend, and there are two thousand and seven hundred remaining. This remainder is set down in the next line, because seventy-five is not contained in two thousand seven hundred any number of hundred times. And so of the residue of the process.

When there is danger that an advanced class will forget the value of the denominations they are handling, they are required to express the value of each figure in full, throughout the whole process, in the manner above described.

I shall never forget the impression which a recitation by a higher class of girls produced upon my mind. It lasted an hour. Neither teacher nor pupil had book or slate. Questions and answers were extemporaneous. They consisted of problems in Vulgar Fractions, simple and compound; in the Rule of Three, Practice, Interest, Discount, &c., &c. A few of the first were simple, but they soon increase in complication and difficulty, and in the amount of the sums managed, until I could hardly credit the report of my own senses, so difficult were the questions, and so prompt and accurate the replies.

A great many of the exercises in arithmetic consisted in reducing the coins of one State to those of another. In Germany, there are almost as many different currencies as there are States; and the expression of the value of one coin in other denominations, is a very common exercise.

It struck me that the main differences between their mode of teaching arithmetic and ours, consists in their beginning earlier, continuing the practice in the elements much longer, requiring a more thorough analysis of all questions, and in not separating the processes, or rules, so much as we do from each other. The pupils proceed less by rule, more by an understanding of the subject. It often happens to our children that while engaged in one rule, they forget a preceding. Hence, many of our best teachers have frequent reviews. But there, as I stated above, the youngest classes of children were taught addition, subtraction, multiplication, and division, promiscuously, in the same lesson. And so it was in the later stages. The mind was constantly carried along, and the practice enlarged in more than one direction. It is a difference which results from teaching, in the one case, from a book; and in the other from the head. In the latter case the teacher sees what each pupil most needs, and, if he finds any one halting or failing on a particular class of questions, plies him with questions of that kind until his deficiencies are supplied.

In algebra, trigonometry, surveying, geometry, &c., I invariably saw the teacher standing before the blackboard, drawing the diagrams and explaining all the relations between their several parts, while the pupils, in their seats, having a pen and a small manuscript book, copied the figures, and took down brief heads of the solution; and at the next recitation they were required to go to the blackboard, draw the figures and solve the problems themselves. How different this mode of hearing a lesson from that of holding the text-book in the left hand, while the fore-finger of the right carefully follows the printed demonstration, under penalty, should the place be lost, of being obliged to recommence the solution.

GRAMMAR AND COMPOSITION.

Great attention is paid to Grammar, or, as it is usually called in the "Plan of Studies," the German language. But I heard very little of the ding-dong and recitative of gender, number and case, of government and agreement, which make up so great a portion of the grammatical exercises in our schools; and which the pupils are often required to repeat until they really lose all sense of the original meaning of the terms they use. Of what service is it for children to reiterate and reassert, fifty times in a single recitation, the gender and number of nouns, about which they never made a mistake even before a grammar book was put into their hands? If the object of grammar is to teach children to speak and

write their native language with propriety, then they should be practiced upon expressing their own ideas with elegance, distinctness, and force. For this purpose, their common every day phraseology is first to be attended to. As their speech becomes more copious, they should be led to recognize those slight shades of distinction which exist between words almost synonymous; to discriminate between the literal and the figurative; and to frame sentences in which the main idea shall be brought out conspicuously and prominently, while all subordinate ones, mere matters of circumstance or qualification, shall occupy humbler or more retired positions. The sentences of some public speakers are so arranged, that what is collateral or incidental stands out boldly in the foreground, while the principal thought is almost lost in the shade; an arrangement as preposterous as if, in the senate chamber, the forum or the parade-ground, the president, the judge or the commanding officer, were thrust into the rear, while a nameless throng of non-officials and incognitos should occupy the places of dignity and authority. Grammar should be taught in such a way as to lead out into rhetoric as it regards the form of the expression, and into logic as it regards the sequence and coherency of the thoughts. If this is so, then no person is competent to teach grammar who is not familiar at least with all the leading principles of rhetoric and logic.

The Prussian teachers, by their constant habit of conversing with the pupils; by requiring a complete answer to be given to every question; by never allowing a mistake in termination, or in the collocation of words or clauses, to pass uncorrected, nor the sentence as corrected to pass unrepeatd; by requiring the poetry of the reading lesson to be changed into oral or written prose, and the prose to be paraphrased, or expressed in different words; and by exacting a general account or summary of the reading lessons, are, as we may almost literally say, constantly teaching grammar; or, as they more comprehensively call it, the German language. It is easy to see that Composition is included under this head, the writing of regular "essays" or "themes" being only a later exercise.

WRITING AND DRAWING.

Such excellent handwriting as I saw in the Prussian schools, I never saw before. I can hardly express myself too strongly on this point. In Great Britain, France, or in our own country, I have never seen any schools worthy to be compared with theirs in this respect. I have before said that I found all children provided with a slate and pencil. They write or print letters, and begin with the elements of drawing, either immediately, or very soon after they enter school. This furnishes the greater part of the explanation of their excellent handwriting. A part of it, I think, should be referred to the peculiarity of the German script, which seems to me to be easier than our own. But after all due allowance is made for this advantage, a high degree of superiority over the schools of other countries remain to be accounted for. This superiority can not be attributed in any degree to a better manner of holding the pen, for I never saw so great a proportion of cases in any schools where the pen was so awkwardly held. This excellence must be referred in a great degree to the universal practice of learning to draw, contemporaneously with learning to write. I believe a child will learn both to draw and to write sooner and with more ease, than he will learn writing alone; and for this reason: the figures or objects contemplated and copied in learning to draw, are larger, more marked, more distinctive one from another, and more sharply defined with projection, angle or curve, than the letters copied in writing. In drawing there is more variety, in writing more sameness. Now the objects contemplated in drawing, *from their nature*, attract attention more readily, impress the mind more deeply, and of course will be more accurately copied than those in writing. And when the eye has been trained to observe, to distinguish, and to imitate, in the first exercise, it applies its habits with great advantage to the second.

Another reason is, that the child is taught to draw things with which he is familiar, which have some significance and give him pleasing ideas. But a child who is made to fill page after page with rows of straight marks, that look so blank and cheerless though done ever so well, has and can have no pleasing associations with his work. The practice of beginning with making inexpressive marks, or with writing unintelligible words, bears some resemblance, in its lifelessness, to

that of learning the alphabet. Each exhales torpor and stupidity to deaden the vivacity of the worker.

Again, I have found it an almost universal opinion with teachers of the art of writing, that children should commence with large hand rather than with fine. The reason for this I suppose to be, that where the letters themselves are larger, their differences and peculiarities are proportionally large; hence they can be more easily discriminated, and discrimination must necessarily precede exact copying. So to speak, the child becomes acquainted with the physiognomy of the large letters more easily than with that of the small. Besides, the formation of the larger gives more freedom of motion to the hand. Now, in these respects, there is more difference between the objects used in drawing and the letters of a large hand, than between the latter and fine hand; and therefore the argument in favor of a large hand, applies with still more force in favor of drawing.

In the course of my tour, I passed from countries where almost every pupil in every school could draw with ease, and most of them with no inconsiderable degree of beauty and expression, to those where less and less attention was paid to the subject; and, at last, to schools where drawing was not practiced at all; and, after many trials, I came to the conclusion, that, with no other guide than a mere inspection of the copy books of the pupils, I could tell whether drawing were taught in the school or not; so uniformly superior was the handwriting in those schools where drawing was taught in connection with it. On seeing this, I was reminded of that saying of Pestalozzi, somewhat too strong, that "without drawing there can be no writing."

But suppose it were otherwise, and that learning to draw retarded the acquisition of good penmanship, how richly would the learner be compensated for the sacrifice. Drawing, of itself, is an expressive and beautiful language. A few strokes of the pen or pencil will often represent to the eye what no amount of words, however well chosen, can communicate. For the master architect, for the engraver, the engineer, the pattern designer, the draughtsman, moulder, machine builder, or head mechanic of any kind, all acknowledge that this art is essential and indispensable. But there is no department of business or condition in life, where the accomplishment would not be of utility. Every man should be able to plot a field, to sketch a road or a river, to draw the outlines of a simple machine, a piece of household furniture, or a farming utensil, and to delineate the internal arrangement or construction of a house.

But to be able to represent by lines and shadows what no words can depict, is only a minor part of the benefit of learning to draw. The study of this art develops the talent of observing, even more than that of delineating. Although a man may have but comparatively few occasions to picture forth what he has observed, yet the power of observation should be cultivated by every rational being. The skillful delineator is not only able to describe far better what he has seen, but he sees twice as many things in the world as he would otherwise do. To one whose eyes have never been accustomed to mark the form, color or peculiarities of objects, all external nature is enveloped in a haze, which no sunshine, however bright, will ever dissipate. The light which dispels this obscurity must come from within. Teaching a child to draw, then, is the development in him of a new talent the conferring upon him, as it were, of a new sense by means of which he is not only better enabled to attend to the common duties of life, and to be more serviceable to his fellow-men, but he is more likely to appreciate the beauties and magnificence of nature, which every where reflect the glories of the Creator into his soul. When accompanied by appropriate instruction of a moral and religious character, this accomplishment becomes a quickener to devotion.

With the inventive genius of our people, the art of drawing would be eminently useful. They would turn it to better account than any other people in the world. We now perform far the greater part of our labor by machinery. With the high wages prevalent amongst us, if such were not the case, our whole community would be impoverished. Whatever will advance the mechanic and manufacturing arts, therefore, is especially important here; and whatever is important for men to know, as men, should be learned by children in the schools.

But whatever may be said of the importance of this art, as it regards the community at large, its value to a school-teacher can hardly be estimated.

If the first exercises in reading were taught as they should be; if the squares of the multiplication table were first to be drawn on the blackboard, and then to be filled up by the pupils, as they should see on what reason the progressive increase of the numbers is founded; if geography were taught from the beginning, as it should be, by constant delineations upon the blackboard; then every teacher, even of the humblest school, ought to be acquainted with the art of linear drawing, and be able to form all the necessary figures and diagrams not only with correctness but with rapidity. But in teaching navigation, surveying, trigonometry, geometry, &c.; in describing the mechanical powers, in optics, in astronomy, in the various branches of natural philosophy, and especially in physiology, the teacher who has a command of this art, will teach incomparably better, and incomparably faster than if he were ignorant of it. I never saw a teacher in a German school make use of a ruler or any other mechanical aid, in drawing the most nice or complicated figures. I recollect no instance in which he was obliged to efface a part of a line because it was too long, or to extend it because it was too short. If squares or triangles were to be formed, they came out squares or triangles without any overlapping or deficiency. Here was not only much time gained, or saved, but the pupils had constantly before their eyes these examples of celerity and perfectness, as models for imitation. No one can doubt how much more correctly, as well as more rapidly, a child's mind will grow in view of such models of ease and accuracy, than if only slow, awkward, and clumsy movements are the patterns constantly held before it.

I saw handwriting taught in various ways. The most common mode for young children was that of writing on the blackboard for their imitation. In such cases, the copy was always beautifully written, and the lesson preceded by instructions and followed by corrections.

Another method which has had some currency in Germany, is this: If the mark to be copied is a simple straight line, thus, / /, the teacher says *one, one*, as words of command; and at each enunciation of the word, the pupils make a mark simultaneously. The teacher accelerates or retards his utterance according to the degree of facility the class has acquired. If the figure to be copied consists of an upward and downward stroke, thus, / \, the teacher says, *one, two; one, two*, (one for the upward, the other for the downward motion of the hand;) at first slowly, afterwards more rapidly. When the figure consists of three strokes, thus 2, he pronounces *one, two, three*, as before. Letters are formed in the same way.

A supposed advantage of this method consists in its retarding the motions of those who would otherwise write too fast, and hastening those who would write too slow. But for these purposes, the teacher must see that all keep time, otherwise the advantage is lost. And, on the whole, there is so much difference between the natural quickness of perception and of motion in different pupils, that there can be no such thing as a universal standard. Some scholars, whose thoughts and muscles are of electric speed, would be embarrassed by being obliged to write slowly; and others could not keep step, though the music played only common time. Neither in their physical nor in their spiritual natures, does the speed of children seem to have been graduated by any one clock.

In the schools I saw, orthography, punctuation, and the use of capitals, were early connected with the exercise of writing.

GEOGRAPHY.

The practice seemed to be uniform, however, of beginning with objects perfectly familiar to the child; the school-house with the grounds around it, the home with its yards or gardens, and the street leading from the one to the other. First of all, the children were initiated into the idea of space, without which we can know no more of geography than we can of history without ideas of time. Mr. Carl Ritter, of Berlin, probably the greatest geographer now living, expressed a decided opinion to me, that this was the true mode of beginning.

- Children, too, commence this study very early; soon after entering school; but no notions are given them which they are not perfectly able to comprehend, reproduce, and express.

I found geography taught almost wholly from large maps suspended against the

walls, and by delineations on the blackboard. And here, the skill of teachers and pupils in drawing did admirable service. The teacher traced the outlines of a country on the suspended map, or drew one upon the blackboard, accompanying the exhibition by an oral lecture; and, at the next recitation, the pupils were expected to repeat what they had seen and heard. And, in regard to the natural divisions of the earth, or the political boundaries of countries, a pupil was not considered as having giving any proof that he had a correct image in his mind, until he could go to the blackboard, and reproduce it from the ends of his fingers. I witnessed no lesson unaccompanied by these tests.

I will describe, as exactly as I am able, a lesson which I heard given to a class a little advanced beyond the elements; remarking that, though I heard many lessons giving on the same plan, none of them were signalized by the rapidity and effect of the one I am about to describe.

The teacher stood by the blackboard, with the chalk in his hand. After casting his eye over the class to see that all were ready, he struck at the middle of the board. With a rapidity of hand which my eye could hardly follow, he made a series of those short, divergent lines, or shadings, employed by map-engravers to represent a chain of mountains. He had scarcely turned an angle, or shot off a spur, when the scholars began to cry out, Carpathian mountains, Hungary; Black Forest mountains, Wurtemberg; Giant's mountains, (Riesen-Gebirge,) Silesia; Metalio mountains, (Erz-Gebirge,) Pine mountains, (Fichtel-Gebirge,) Central mountains, (Mittel-Gebirge,) Bohemia, &c., &c.

In less than half a minute, the ridge of that grand central elevation which separates the waters that flow north-west into the German ocean, from those that flow north into the Baltic, and south-east into the Black Sea, was presented to view; executed almost as beautifully as an engraving. A dozen crinkling strokes, made in the twinkling of an eye, represented the head-waters of the great rivers which flow in different directions from that mountainous range; while the children, almost as eager and excited as though they had actually seen the torrents dashing down the mountain sides, cried out, Danube, Elbe, Vistula, Oder, &c. The next moment I heard a succession of small strokes or taps, so rapid as to be almost indistinguishable, and hardly had my eye time to discern a large number of dots made along the margins of the rivers, when the shout of Lintz, Vienna, Prague, Dresden, Berlin, &c., struck my ear. At this point in the exercise, the spot which had been occupied on the blackboard was nearly a circle, of which the starting point, or place where the teacher first began, was the center; but now a few additional strokes around the circumference of the incipient continent, extended the mountain ranges outwards toward the plains; the children responding the names of the countries in which they respectively lay. With a few more flourishes the rivers flowed onwards toward their several terminations, and by another succession of dots, new cities sprang up along their banks. By this time the children had become as much excited as though they had been present at a world-making. They rose in their seats, they flung out both hands, their eyes kindled, and their voices became almost vociferous as they cried out the names of the different places, which, under the magic of the teacher's crayon, rose into view. Within ten minutes from the commencement of the lesson, there stood upon the blackboard a beautiful map of Germany, with its mountains, principal rivers and cities, the coast of the German ocean, of the Baltic and the Black seas; and all so accurately proportioned, that I think only slight errors would have been found had it been subjected to the test of a scale of miles. A part of this time was taken up in correcting a few mistakes of the pupils; for the teacher's mind seemed to be in his ear as well as in his hand, and notwithstanding the astonishing celerity of his movements, he detected erroneous answers and turned round to correct them. The rest of the recitation consisted in questions and answers respecting productions, climate, soil, animals, &c., &c.

Many of the cosmogonists suppose that after the creation of the world, and when its whole surface was as yet fluid, the solid continents rose gradually from beneath the sea: first the loftiest peak of the Andes, for instance, emerged from the deep, and as they reached a higher and a higher point of elevation, the rivers began to flow down their sides, until at last—the lofty mountains having attained their height, the mighty rivers their extent and volume, and the continent its

amplitude—cultivation began, and cities and towns were built. The lesson I have described was a beautiful illustration of that idea, with one advantage over the original scene itself, that the spectator had no need of waiting through all the geological epochs to see the work completed.

Compare the effect of such a lesson as this, both as to the amount of the knowledge communicated, and the vividness and of course the permanence of the ideas obtained, with a lesson where the scholars look out a few names of places on a lifeless atlas, but never send their imaginations abroad over the earth; and where the teacher sits listlessly down before them to interrogate them from a book, in which all the questions are printed at full length, to supersede on his part all necessity of knowledge.

EXERCISES IN THINKING. KNOWLEDGE OF NATURE. KNOWLEDGE OF THE WORLD.
KNOWLEDGE OF SOCIETY.

In the "Study-Plans" of all the schools in the north of Prussia, I found most, and in some of them all of the above subjects of lessons. To each was assigned its separate hour and place in the routine of exercises. For brevity's sake, however, and because the topics naturally run into each other, I shall attempt to describe them together.

These lessons consisted of familiar conversations between teacher and pupils, on subjects adapted to the age, capacities, and proficiency of the latter. With the youngest classes, things immediately around them; the school-room and the materials of which it had been built; its different parts, as foundation, floor, walls, ceiling, roof, windows, doors, fireplace; its furniture and apparatus; its books, slates, paper; the clothes of the pupils, and the materials from which they were made; their food and play-things; the duties of children to animals, to each other, to their parents, neighbors, to the old, to their Maker; these are specimens of a vast variety of subjects embraced under one or another of the above heads. As the children advanced in age and attainments, and had acquired full and definite notions of the visible and tangible existences around them, and also of time and space, so that they could understand descriptions of the unseen and the remote, the scope of these lessons was enlarged, so as to take in the different kingdoms of nature, the arts, trades and occupations of men, and the more complicated affairs of society.

When visiting the schools in Leipzig, I remarked to the superintendent, that most accomplished educationist, Dr. Vogel, that I did not see on the "Study-Plan" of his schools, the title, "Exercises in Thinking." His reply was, "No; for I consider it a *sin* in any teacher not to lead his pupil to think, in regard to all the subjects he teaches." He did not call it an omission or even a disqualification in a teacher, if he did not awaken thought in the minds of his pupils, but he peremptorily denounced it as a "*sin*." Alas! thought I, what expiation will be sufficient for many of us who have had charge of the young!

It is obvious from the account I have given of these primary lessons, that there is no restriction as to the choice of subjects, and no limits to the extent of information that may be engrafted upon them. What more natural than that a kind, eager-minded boy just entering his school, by speaking to him about the domestic animals which he plays with, or tends at home; the dog, the cat, the sheep, the horse, the cow? Yet, without any interruption or overleaping of natural boundaries, this simple lesson may be expanded into a knowledge of all quadrupeds, their characteristics and habits of life, the uses of their flesh, skins, fur, bones, horns, or ivory, the parts of the world where they live, &c., &c. So if a teacher begins to converse with a boy about domestic fowls, there is no limit, save in his own knowledge, until he has exhausted the whole subject of ornithology; the varieties of birds, their plumage, their uses, their migratory habits, &c., &c. What more natural than that a benevolent teacher should ask a blushing little girl about the flowers in her vases, or garden at home? and yet, this having been done, the door is opened that leads to all botanical knowledge, to the flowers of all the seasons, and all the zones, to the trees cultivated by the hand of man, or the primeval forests that darken the face of continents. Few children go to school who have not seen a fish; at least, a minnow in a pool. Begin with this, and

nature opposes no barrier until the wonders of the deep are exhausted. Let the school-house, as I have said, be the first lesson, and to a mind replenished with knowledge, not only all the different kinds of edifices—the dwelling-house, the church, the court-house, the palace, the temple—are at once associated; but all the different orders of architecture, Corinthian, Ionic, Doric, Egyptian, Gothic, &c., rise to the view. How many different materials have been brought together for the construction of the school-house; stone, wood, nails, glass, bricks, mortar, paints, materials used in glazing, &c., &c. Each one of these belongs to a different department of nature; and when an accomplished teacher has once set foot in any one of these provinces, he sees a thousand interesting objects around him, as it were soliciting his attention. Then each one of these materials has its artificer; and thus all the mechanical trades may be brought under consideration; the house builder's, the mason's, the plumber's, the glazier's, the locksmith's &c. A single article may be viewed under different aspects; as, in speaking of a lock, one may consider the nature and properties of iron; its cohesiveness, malleability, &c., its utility, or the variety of utensils into which it may be wrought; or the conversation may be turned to the particular object and uses of the lock, and upon these a lesson on the rights of property, the duty of honesty, the guilt of theft and robbery, &c., be engrafted. So in speaking of the beauties and riches and wonders of nature—of the revolution of the seasons, the glory of spring, the exuberance of autumn, the grandeur of the mountain, the magnificence of the firmament—the child's mind may be turned to a contemplation of the power and goodness of God. I found these religious aspects of nature to be most frequently adverted to; and was daily delighted with the reverent and loving manner in which the name of the Deity was always spoken, "*Der liebe Gott*," the dear God, was the universal form of expression; and the name of the Creator of heaven and earth was hardly ever spoken, without this epithet of endearment.

It is easy also to see that a description of the grounds about the school-house or the paternal mansion, and of the road leading from one of these places to the other, is the true starting point of all geographical knowledge; and, this once begun, there is no terminus, until all modern and ancient geography, and all travels and explorations by sea and land, are exhausted. So the boy's nest of marbles may be the nucleus of all mineralogy; his top, his kite, his little wind-wheel or water-wheel, the salient point of all mechanics and technology; and the stories he has heard about the last king or the aged king, the first chapter in universal history.

I know full well that the extent and variety of subjects said to be taught to young children in the Prussian schools, have been often sneered at.

In a late speech, made on a public occasion, by one of the distinguished politicians in our country, the idea of teaching the natural sciences in our common schools was made a theme for ridicule. Let it be understood in what manner an accomplished teacher may impart a great amount of useful knowledge on these subjects, and perhaps awaken minds which may hereafter adorn the age, and benefit mankind by their discoveries, and it will be easily seen to which party the ridicule most justly attaches. "What," says the objectors, "teach children botany, and the unintelligible and almost unspeakable names, *Monandria*, *Dian-dria*, *Triandria*, &c.; or zoology, with such technical terms as *Mollusca*, *Crustacea*, *Vertebrata*, *Mammalia*, &c., the thing is impossible!" The Prussian children are not thus taught. For years, their lessons are free from all the technicalities of science. The knowledge they already possess about common things is made the nucleus around which to collect more; and the language with which they are already familiar becomes the medium through which to communicate new ideas, and by which, whenever necessary, to explain new terms. There is no difficulty in explaining to a child, seven years of age, the distinctive marks by which nature intimates to us, at first sight, whether a plant is healthful or poisonous; or those by which, on inspecting the skeleton of an animal that lived thousands of years ago, we know whether it lived upon grass, or grain, or flesh. It is in this way that the pupil's mind is carried forward by an actual knowledge of things, until the time arrives for giving him classifications and nomenclatures. When a child knows a great many particular or individual things, he begins to perceive resemblances between some of them; and they then naturally assort themselves, as it were, in

his mind, and arrange themselves into different groups. Then, by the aid of a teacher, he perfects a scientific classification among them, bringing into each group all that belong to it. But soon the number of individuals in each group becomes so numerous, that he wants a cord to tie them together, or a vessel in which to hold them. Then, from the nomenclature of science, he receives a name which binds all the individuals of that group into one, ever afterwards. It is now that he perceives the truth and the beauty of classification and nomenclature. An infant that has more red and white beads than it can hold in its hands, and to prevent them from rolling about the floor and being lost, collects them together, putting the white in one cup and the red in another, and sits and smiles at its work, has gone through with precisely the same description of mental process that Cuvier and Linneus did, when they summoned the vast varieties of the animal and vegetable kingdoms into their spiritual presence, and commanded the countless hosts to arrange themselves into their respective genera, orders, and species.

Our notions respecting the expediency or propriety of introducing the higher branches, as they are called, into our common schools, are formed from a knowledge of our own school teachers, and of the habits that prevail in most of the schools themselves. With us, it too often happens that if a higher branch, geometry, natural philosophy, zoology, botany, is to be taught, both teacher and class must have text-books. At the beginning of these text-books, all the technical names and definitions belonging to the subject are set down. These, before the pupil has an practical idea of their meaning, must be committed to memory. The book is then studied chapter by chapter. At the bottom of each page, or at the ends of the sections, are questions printed at full length. At the recitations, the teacher holds on by these leading-strings. He introduces no collateral knowledge. He exhibits no relation between what is contained in the book, and other kindred subjects, or the actual business of men and the affairs of life. At length the day of examination comes. The pupils rehearse from memory with a suspicious fluency; or, being asked for some useful application of their knowledge, some practical connection between that knowledge and the concerns of life, they are silent, or give some ridiculous answer, which at once disparages science and gratifies the ill-humor of some ignorant satirist. Of course, the teaching of the higher branches falls into disrepute in the minds of all sensible men, as, under such circumstances, it ought to do. But the Prussian teacher has no book. He needs none. He teaches from a full mind. He cumbers and darkens the subject with no technical phraseology. He observes what proficiency the child has made, and then adapts his instructions, both in quality and amount, to the necessity of the case. He answers all questions. He solves all doubts. It is one of his objects, at every recitation, so to present ideas, that they shall start doubts and provoke questions. He connects the subject of each lesson with all kindred and collateral ones; and shows its relations to the every-day duties and business of life; and should the most ignorant man, or the most destitute vagrant in society, ask him "of what use such knowledge can be?" he will prove to him, in a word, that some of his own pleasures or means of subsistence are dependent upon it, or have been created or improved by it.

In the meantime, the children are delighted. Their preceptive powers are exercised. Their reflecting faculties are developed. Their moral sentiments are cultivated. All the attributes of the mind within, find answering qualities in the world without. Instead of any longer regarding the earth as a huge mass of dead matter, without variety and without life, its beautiful and boundless diversities of substance, its latent vitality and energies, gradually drawn forth, until, at length, they illuminate the whole soul, challenging its admiration for their utility, and its homage for the bounty of their Creator.

There are other points pertaining to the qualification of teachers, which would perhaps strike a visitor or spectator more strongly than the power of giving the kind of lessons I have described; but probably there is nothing which, at the distance of four thousand miles, would give to a reader or hearer so adequate an idea of intelligence and capacity, as a full understanding of the scope and character of this class of exercises. Suppose, on the one hand, a teacher to be introduced into a school, who is competent to address children on this great range and variety of subjects, and to address them in such a manner as to arouse their curi-

city, command their attention, and supply them not only with knowledge, but with an inextinguishable love for it; suppose such a teacher to be able to give one, and sometimes two such lessons a day, that is, from two hundred to four hundred lessons in a year, to the same class, and to carry his classes, in this way, through their eight years schooling. On the other hand, suppose a young man coming fresh from the plow, the workshop, or the anvil; or, what is no better, from Greek and Latin classics, and suppose his knowledge on the above enumerated subjects to be divided into four hundred, or even into two hundred parts, and that only one two-hundredth portion of that stock of knowledge should be administered to the children in a day. Let us suppose all this, and we shall have some more adequate idea of the different advantages of children, at the present time, in different parts of the world. In Prussia, the theory, and the practice under it, are, not that three years' study under the best masters qualifies a talented and devoted man to become a teacher, but that three years' of such *general* preparation may qualify one for that *particular* and *daily* preparation which is to be made before meeting a class in school. And a good Prussian teacher no more thinks of meeting his classes without this daily preparation, than a distinguished lawyer or clergyman amongst ourselves would think of managing a cause before court and jury, or preaching a sermon, without special reading and forethought.

It is easy to see, from the above account, how such a variety of subjects can be taught simultaneously in school, without any interference with each other; nay, that the "common bond," which, as Cicero says, binds all sciences together, should only increase their unity as it enlarges their number.

BIBLE HISTORY AND BIBLE KNOWLEDGE.

Nothing receives more attention in the Prussian schools than the Bible. It is taken up early and studied systematically. The great events recorded in the Scriptures of the Old and New Testament; the character and lives of those wonderful men, who, from age to age, were brought upon the stage of action, and through whose agency the future history and destiny of the race were to be so much modified; and especially, those sublime views of duty and of morality which are brought to light in the Gospel, these are topics of daily and earnest inculcation, in every school. To these, in some schools, is added the history of the Christian religion, in connection with cotemporary civil history. So far as the Bible lessons are concerned, I can ratify the strong statements made by Professor Stowe, in regard to the absence of sectarian instruction, or endeavors at proselytism. The teacher being amply possessed of a knowledge of the whole chain of events, and of all biographical incidents; and bringing to the exercise a heart glowing with love to man, and with devotion to his duty as a former of the character of children, has no necessity or occasion to fall back upon the formulas of a creed. It is when a teacher has no knowledge of the wonderful works of God, and of the benevolence of the design in which they were created; when he has no power of explaining and applying the beautiful incidents in the lives of prophets and apostles, and especially, the perfect example which is given to men in the life of Jesus Christ; it is then, that, in attempting to give religious instruction, he is, as it were, constrained to recur again and again to the few words or sentences of his form of faith, whatever that faith may be; and, therefore, when giving the second lesson, it will be little more than a repetition of the first, and the two-hundredth lesson, at the end of the year, will differ from that at the beginning only in accumulated wearisomeness and monotony.

There are one or two facts, however, which Professor Stowe has omitted to mention, and without a knowledge of which, one would form very erroneous ideas respecting the character of some of the religious instruction in the Prussian schools. In all the Protestant schools, Luther's Catechism is regularly taught; and in all the Roman Catholic schools, the Catechism of that communion. When the schools are mixed, they have combined literary with separate religious instruction; and here all the doctrines of the respective denominations are taught early and most assiduously. I well remember hearing a Roman Catholic priest inculcating upon a class of very young children the doctrine of transubstantiation. He illustrated it with the miracle of the water changed to wine, at the marriage feast in Cana; and said that he who could turn water into wine, could turn his own

blood into the same element, and also his body into bread to be eaten with it. Contrary, then, to the principles of our own law, sectarianism is taught in all Prussian schools; but it is nevertheless true, as Professor Stowe says, that the Bible can be taught, and is taught, without it.

MUSIC.

All Prussian teachers are masters not only of vocal, but of instrumental music. One is as certain to see a violin as a blackboard, in every school-room. Generally speaking, the teachers whom I saw, played upon the organ also, and some of them upon the piano and other instruments. Music was not only taught in school as an accomplishment, but used as a recreation. It is a moral means of great efficacy. Its practice promotes health; it disarms anger, softens rough and turbulent natures, socializes, and brings the whole mind, as it were, into a state of fusion, from which condition the teacher can mould it into what forms he will, as it cools and hardens.

All these subjects I have enumerated, were taught in all the schools I visited, whether in city or country, for the rich or for the poor. In the lowest school in the smallest and obscurest village, or for the poorest class in over-crowded cities; in the schools connected with pauper establishments, with houses of correction or with prisons, in all these, there was a teacher of *mature age*, of simple unaffected and decorous manners, benevolent in his expression, kind and genial in his intercourse with the young, and of such attainments and resources as qualified him not only to lay down the abstract principles of the above range of studies, but, by familiar illustration and apposite example, to commend them to the attention of the children.

Although the foregoing account of primary instruction in Germany, was drawn from observations mainly in the schools of Prussia and Saxony, it is, in its main features, applicable to primary schools in the other German States. On this point, Mr. Kay bears the following emphatic testimony in his valuable contribution to our knowledge of the social and educational condition of Europe*—a work, from which we shall have occasion to quote largely in giving an account of the school systems of Switzerland and the several German States.

In Bavaria, Wirtemberg, the Duchy of Baden, and Nassau, as much, and in Wirtemberg and Baden perhaps even more, has been done to promote the intelligence, morality, and civilization of the lower orders of society, than in Prussia. In each of these countries, every village has a good school-house, and *at least* one learned and practically efficient teacher, who has been educated for several years at a college; every town has several well-organized schools, sufficiently large to receive all the children of the town, who are between the ages of six and fourteen; each of these schools contains from four to ten class-rooms, and each class-room is under the direction of a highly educated teacher.

In each of these countries, every parent is *obliged* to educate his children, either at home or at some school, the choice of means being left to himself. In none of these countries are children left to grow up in vicious ignorance or with debasing habits.

In none of these countries, is there any class of children analogous to that, which swarms in the back streets, alleys, and gutters of our great cities and towns, and from which our paupers, our disaffected, and our criminals grow up, and from which our "ragged schools" are filled. All the children are intelligent, polite, clean, and neatly dressed, and grow up from their sixth to their fourteenth year under the teaching and influence of educated men.

* *The Social Condition and Education of the People in England and Europe*; showing the results of the primary schools and of the division of landed property in foreign countries, by Joseph Kay, Esq., M. A. of Trinity College, Cambridge; Barrister-at-law; and late Traveling Bachelor of the University of Cambridge. London: Longman, Brown, Green, and Longmans. 1850.

In each of these countries a sufficient number of normal colleges has been founded, to enable it to educate a sufficient supply of teachers for the parishes and towns.

In each of these countries, all the schools of every sect and party, private as well as public, are open to public inspection, and are visited several times every year by learned men, whose business it is to examine both teachers and scholars, and to give the government, the chambers, and the country, a full and detailed account of the state, condition, character, and progress of every school, so that parents may know where to send their children with safety; that good teachers may be encouraged, rewarded, and promoted; and that unworthy teachers may not be suffered to continue long in their situations.

In each of these countries, the laws prohibit any person being a teacher of any school, until he has proved his efficiency to the committee of professors, appointed by the state to examine candidates, and until he has laid before such committee testimonials of character from his religious minister, his neighbors, and the professors of the college at which he was educated.

I can give a traveler, who is desirous of comprehending at one short view the workings of the German and Swiss systems of popular education, no better advice than to direct him to notice the state of the streets in any German or Swiss town, which he happens to visit; no matter where it be, whether on the plains of Prussia or Bavaria, on the banks of the Rhine, in the small towns of the Black Forrest, or in the mountainous cantons of Alpine Switzerland, no matter where, let him only walk through the streets of such a town in the morning or the afternoon, and count the number of children to be found there above the age of four or five, or let him stand in the same streets, when the children are going to or returning from the schools, and let him examine their cleanly appearance, the good quality, the excellent condition, and the cleanliness of their clothing, the condition of the lesson books they are carrying, the happiness and cheerfulness, and, at the same time, the politeness and ease of their manners; he will think he sees the children of the rich; but let him follow them home, and he will find that many of them are the offspring of the poorest artisans and laborers of the town. If that one spectacle does not convince him of the magnitude of the educational efforts of Germany, and of the happy results which they are producing, let him go no further, for nothing he can further see will teach him. Let him then come home, and rejoice in the condition of our poor; but, should he start at this extraordinary spectacle, as I have seen English travelers do, to whom I have pointed out this sign of advanced and advancing civilization, let him reflect, that this has been effected, spite of all the obstacles which impede ourselves. Bigotry and ignorance have cried their loudest; Romanists have refused co-operation with Protestants, Protestants with Romanists, and yet they have co-operated. There has been the same strong jealousy of all government interference, the same undefined and ill-digested love of liberty, and there has been the same selfish fear of retarding the development of physical resources. In Bavaria, the war has been waged between Romanists and Protestants; in Argovie, opposition has been raised by the manufacturers; in Lucerne, by the religious parties, and by the political opponents of the government; and in Baden, the difficulties have been aggravated by the numbers of Jews, whom both Romanists and Protestants hated to receive into alliance, even more than they disliked to co-operate among themselves. But in all these countries the great principle has finally triumphed; and all parties have yielded some little of their claims, in the full conviction, that a day is dawning upon Europe, fraught with the most overwhelming evils for that country which has not prepared for its approach.

Whether the methods by which any of these different countries are carrying out their great design, are in any way applicable to this country or not, I shall not stop to consider, my desire being merely to show how different countries, with different degrees of political freedom, with different political constitutions, whose people profess different religious tenets, where Protestants of different sects, Roman Catholics, and Jews, are mingled up in every kind of proportion, have all managed to overcome difficulties precisely similar to those which stand in our way, and have all agreed to labor together to educate their poor. For it is a great fact, however much we may be inclined to doubt it, that throughout Prussia,

Saxony, Bavaria, Bohemia, Wirtemberg, Baden, Hesse Darmstadt, Hesse Cassel, Gotha, Nassau, Hanover, Denmark, Switzerland, Norway, and the Austrian Empire, ALL the children are actually, at this present time, attending school, and are receiving a careful, religious, moral, and intellectual education, from highly educated and efficient teachers. Over the vast tract of country, which I have mentioned, as well as in Holland and the greater part of France, *all* the children above six years of age are daily acquiring useful knowledge and good habits under the influence of moral, religious, and learned teachers. ALL the youth of the greater part of these countries, below the age of twenty-one years, can read, write, and cipher, and know the Bible history, and the history of their own country. No children are left idle and dirty in the streets of the towns; there is no class of children to be compared, in any respect, to the children who frequent our "ragged schools;" all the children, even of the poorest parents, are, in a great part of these countries, in dress, appearance, cleanliness, and manners, as polished and civilized as the children of our middle classes; the children of the poor in Germany are so civilized that the rich often send their children to the schools intended for the poor; and, lastly, in a great part of Germany and Switzerland, the children of the poor are receiving a *better* education than that given in England to the children of the greater part of our middle classes! These facts deserve to be well considered.

And let it be remembered that these great results have been attained, notwithstanding obstacles *at least* as great as those which make it so difficult for us to act. Are they religious differences which hinder us? Look at Austria, Bavaria, and the Prussian Rhine provinces, and the Swiss cantons of Lucerne and Soleure. Will any one say, that the religious difficulties in those countries are less than those which exist in our own? Is the sectarianism of the Jesuits of Lucerne, or of the priests of Bavaria, of a more yielding character toward the Protestant "heretics," than that of one Protestant party in England toward another? And yet, in each of these countries, the difficulties arising from religious differences have been overcome, and *all* their children are brought under the influence of a *religious* education, without any religious party having been offended. But are they political causes, which prevent us proceeding in this great work, in which nearly all Europe has so long preceded us, notwithstanding that we need it more than all the European nations put together? Are they political causes, I ask? I answer by again referring my readers to the countries I have enumerated. Under the democratic governments of the Swiss cantons, where it is the people who rule and legislate; under the constitutional governments of Saxony, Wirtemberg, and Baden, which were framed more or less upon the English model, and where the people have long had a direct influence upon the government; under the constitutional governments of France and Holland, and under all the different grades of absolute rule which existed but a few months since in Prussia, the German dukedoms, and the Austrian states, the difficulties of the question have long been overcome, and with such entire satisfaction to all parties, that among the present representatives of the people, no member has ever been heard to express a desire for the change of the laws which relate to primary education.

But once again; perhaps there are some who say, but there is no country which is troubled, as we are, by the union of both religious and political difficulties. I again refer my readers to the cases of Holland and Switzerland. They will find in these countries the same strong love of independence of action, which we boast so proudly and so justly. They will find also, not only strong religious feuds existing among the Protestants themselves, and pushed to the most shameful extremities, as in the case of the canton of Vaud, from which one religious party has lately been driven as exiles, but they will find the still more formidable differences of the Protestants and Catholics arrayed against each other, and seemingly preventing all union on any subject whatsoever; and yet, in all these various countries, differing as they do in the state of their religious parties, and of their political regulations, in *all* of them, I say, have *all* parties consented to join on this one great and important question, *THE EDUCATION OF THE PEOPLE*.

But there are some who say, that if our means of direct education are worse, yet that our means of indirect education are better than those of other countries, and that if our people have not schools and good teachers, they have long had a

free press, the right of assembling together for political discussion, plenty of cheap and very liberal journals, good reports of all the debates of our Houses of Legislature, and a literature free in its spirit, suggestive in its writings, and any thing but one-sided in its views of political and social questions, and that all this serves to stimulate the intellectual energies of the people. As far as regards the middle classes, this is all very true; but, as regards the poor, it is ridiculously false. Most of our poor are either wholly without education, or else possess so little as to be entirely out of the sphere of such influences, as those I have enumerated. What good can one of our boorish peasants gain from cheap literature, free parliamentary debates, free discussion, and liberal journals? What advantage is it to a starving man that there is bread in the baker's shop, if he has not wherewith to buy? What good is cheap literature and free discussion to a poor peasant who can neither read nor think? He starves in the midst of plenty, and starves too with a curse upon his lips.

It is utterly false to argue that the peasants would provide themselves with schools and education, if education would improve their condition in society. We can never hope to see the peasants supply themselves with schools. They never have done so in any country, they never will do so in our own. Such a step implies in them a great prior development of the intellectual and moral faculties; a development which can only be obtained by means of education. The peasants are neither wise enough, nor rich enough, to erect or support schools for themselves, and should government refuse either to do it for them, or to oblige all classes to assist the poor to accomplish this great work, we may rest assured that another century will see no further advances than we have made at present; our schools are for the most part totally unfitted for their purpose, and our teachers the most ignorant, ill-paid, and least respected set of men in the community. Other countries have long since recognized these truths, and acted upon them.

Whilst in England we have been devoting most of our energies to the increase of our national wealth, the Germans and Swiss have been engaged in the noble undertaking of attempting to raise the character and social position of their poorer classes. To effect this, they have not vainly imagined that schools alone were sufficient, but to the accomplishment of this great end, every social institution and every social regulation has been rendered subservient. They began, it is true, by raising schools, and educating teachers; but they have continued this great work by reforming their prisons and criminal codes; by facilitating the transfer and division of their lands; by simplifying their legal processes; by reforming their ecclesiastical establishments; by entirely changing the mediæval and illiberal constitutions of their universities and public schools; by improving the facilities of internal communication; and, lastly, by opening the highest and most honorable offices of the state to all worthy aspirants, no matter of how low an origin.

Nor have their labors in the cause of social reform diminished, as there was seemingly less immediate need for them. On the contrary, to a traveler in these countries, who has not acquainted himself with all that has been going on there for the last thirty years, they would seem to be only now commencing, so vigorous and universal are the efforts which are *at this moment* being made.

It is doubtless true, that the social polity of a country should be so ordered, that the whole life of any of its members should be a progressive and continued religious, moral, and intellectual education; but it is no less certain that this great work, if it is ever to have a commencement, must begin at home, and be continued, in the case of the peasant, in the village school, under the superintendence of the religious minister and village teacher, or it can never be accomplished at all. True it is, that at first the evil influence of the home will be stronger than the good one of the teacher and the school. But still, if he understand the conduct of his important work, he will know how to awaken those principles which, it may be, lie dormant, but which nevertheless exist in every child's mind, and which, if once aroused, would be certain in some degree to mitigate the evil influences of home. Thus might we hope, that the cottage firesides of the next generation would prove less injurious than those of the present to the children, who will cluster around them, and that the school would have an auxiliary, and not an antagonist, in the powerful, though now, alas! too often misdirected influences of home. It is only when we have attained this happy result, that we can hope to realize the full bene-

fits which education is capable of conferring, and which, in other lands, it is at this day conferring upon the people.

So long as the early *domestic* training is in direct opposition to the education of the schools, so long must the improvement in education be very slow; but, however slow, it is the only sure means we have of counteracting the effects of a vicious domestic training, and of cleansing the very fount of immorality. The laborer is occupied from twilight on to twilight, and the religious ministers have but few opportunities of bringing higher influences to bear upon him. Those, too, who must need improvement, are generally the most unwilling to receive it; and those whose homes act most injuriously on the younger inmates, are precisely those, who oppose most strenuously the entry of the religious minister, and who are most rarely brought under any ennobling influence whatever. Thus it often happens, that the only way by which we can introduce reform into a home, is through the children; for, most happily, there is among the poor such a great idea of the benefits to be derived from education, that it very rarely happens that the parent can not be persuaded to send his child to school, *when he is enabled to do so*.

It is delightful to see how thoroughly this truth has been recognized in Western Europe. From the shores of the Baltic and the North Sea to the foot of the great Alpine range, and from the Rhine to the Danube, *all* the children of both rich and poor are receiving *daily* instruction, under the surveillance of their religious ministers, from long and most carefully educated teachers. Throughout the plains of Prussia, Bohemia, and Bavaria, among the hills and woods of Saxony and central Germany, in the forests and rich undulating lands of Wirtemberg and Baden, in the deep and secluded Alpine valleys of Switzerland and the Tyrol, in most of the provinces of the Austrian empire, throughout Holland, Denmark, and almost the whole of France, and even in the plains of Italian Lombardy, there is scarcely a single parish, which does not possess its school-house and its one or two teachers. The school buildings are often built in really an extravagant manner; and in Switzerland and South Germany, the village school is generally the finest erection of the neighborhood. In the towns the expenditure on these monuments of a nation's progress is still more remarkable. Here the municipal authorities generally prefer to unite several schools for the sake of forming one complete one. This is generally erected on the following plan: A large house is built of three or four stories in height, with commodious play yards behind. The one or two upper stories are used as apartments for the teachers; the lower rooms are set apart for the different classes. A town school has generally from *eight* to *ten*, and sometimes twelve or fourteen, of these class-rooms, each of which is capable of containing from 80 to 100 children. An educated teacher is appointed to manage each class, so that there is generally a staff of at least *eight* teachers connected with each town school of Germany, and I have seen schools with as many as twelve and fourteen teachers. The rooms are filled with desks, maps, and all the apparatus which the teachers can require for the purposes of instruction. I generally noticed, on entering a small German or Swiss town, that next to the church, the finest building was the one set apart for the education of the children.

It is impossible to estimate the enormous outlay which Germany has devoted to the erection and improvement of school-houses alone, during the last fifteen years. In the towns, hardly any of the old and inefficient buildings now remain, except where they have been improved and enlarged. In Munich, I directed my conductor to lead me to the worst school buildings in the city, and I found all the class-rooms measuring fourteen feet high by about twenty-five square, and ten of such class-rooms in each school-house, each of which rooms was under the constant direction of an educated teacher. In whatever town I happened to be staying, I always sought out the worst, in preference to the best schools. In Berlin, the worst I could find contained four class-rooms, each eight feet in height, and about fifteen feet square; and in the Grand Duchy of Baden I found that the Chambers had passed a law prohibiting any school-house being built, the rooms of which were not fourteen feet high.

Throughout Germany no expense seems to have been spared to improve the materials of popular instruction.

This could never have been effected had not the expenses of such an immense

undertaking been equally distributed over all the parishes of the different states. The burden being thus divided amongst all, is not felt by any; but had the government started in the vain hope of being able to bear even a third of the expense, popular education would have been no further advanced in Germany than in England. But wiser, or more interested in the real success of the undertaking than ourselves, the governments of the different states have obliged each province to provide for the expenses necessary for its own primary education.

The systems, so far from having been systems of excessive centralization, leaving no freedom of action to the parishes, have been always and still are *essentially* parochial systems, merely under the surveillance, and subject to the check of the central authority. It is the parishes and towns, which tax themselves for educational purposes; it is the parishioners and citizens, who elect their own teachers; it is the parishioners and citizens, who pay their own teachers, and provide all the materials for the education of their own poor; it is the parishioners and citizens, who determine whether they will have separate schools for their different religious sects, or common schools for them all; it is the parishioners, who choose the sites of their school-houses, and the outlay they will make, on their erection; and although they have not the power of dismissing a teacher after they have once elected him, without first showing to government a sufficient ground for such a step, yet they are afforded every facility of forwarding any complaints they may have to make of any teacher they have elected, to the educational authorities appointed to judge such matters, and to protect the teachers from the effects of mere personal animosities or ignorance.

Germany will one day be lauded by all Europe, as the inventor of a system scouring, in the best possible manner, guidance by the greatest intelligence of the country, the cheapest manner of working, the fostering of local activity and of local sympathies, and the cordial assistance of the religious ministers.

Disputes about separate or mixed schools are unheard of in Prussia, because every parish is left to please itself which kind it will adopt. One of the leading Roman Catholic Counsellors of the Educational Bureau in Berlin assured me, that they never experienced any difficulty on this point. "We always," he said, "encourage separate schools when possible, as we think religious instruction can be promoted better in separate than in mixed schools; but, of course, we all think it better to have mixed schools, than to have no schools at all; and when we can not have separate schools we are rejoiced to see the religious sects uniting in the support of a mixed one. When mixed schools are decided on by the parochial committees, the teacher is elected by the most numerous of the two sects; or, if two teachers are required, one is elected by one sect, and the other by the other; and in this case each conducts the religious education of the children of his own sect. But when only one teacher is elected, the children of those parents, who differ from him in religious belief, are permitted to be taken from the school during the religious lessons, on condition that their parents make arrangements for their religious instruction by their own ministers."

I went to Prussia with the firm expectation, that I should hear nothing but complaints from the peasants, and that I should find the school nothing but a worthy offshoot of an absolute government. To test whether this really was the case or not, as well as to see something of the actual working of the system in the country districts, I traveled alone through different parts of the Rhine provinces for four weeks before proceeding to the capital. During the whole of my solitary rambles, I put myself as much as possible into communication with the peasants and with the teachers, for the purpose of testing the actual state of feeling on this question. Judge, then, of my surprise, when I assure my readers that, although I conversed with many of the very poorest of the people, and with both Romanists and Protestants, and although I always *endeavored* to elicit expressions of discontent, I never once heard, in any part of Prussia, one word spoken by any of the peasants against the educational regulations. But on the contrary, I every where received daily and hourly proofs, of the most unequivocal character, of the satisfaction and real pride with which a Prussian, however poor he may be, looks upon the schools of his locality.

Often and often have I been answered by the poor laborers, when asking them whether they did not dislike being *obliged* to educate their children, "Why should

I? The schools are excellent; the teachers are very learned and good men; and then think how much good our children are gaining; they behave better at home, they make our families all the happier, and they are much better able in after-life to earn their own livelihood. No, no; we do not dislike the schools. We know too well how much good our children are gaining from them." I have heard this said over and over again in different parts of Prussia, Saxony, Bavaria, Wirtemberg, and Baden; and, indeed, I may add, that throughout Germany, I never heard one single word of discontent uttered against these truly liberal and Christian establishments.

Every one of the richer classes, with whom I conversed, corroborated the truth of all that the peasants had told me. I particularly remember a very intelligent teacher at Elberfeld saying to me, "I am quite convinced that, if we had a political revolution to-morrow, none of the peasants would think of wishing to have any great alteration made in the laws which relate to the schools." Recent facts have proved the truth of the assertion.*

Several travelers have fallen into the strangest errors in their investigations on this subject, from having confined their attention to the schools of the capitals, or of one or two other large towns. Very few have seen the working of the system in the villages and remote provinces. But it is there only that a fair idea can be formed of the effects it is producing, and of the manner in which it is regarded by the people themselves.

The following extracts from Report of Prof. Mark Patterson to the English Education Commission on the State of Elementary Education in Germany, present other and more recent aspects of the matters taught in the elementary schools of Prussia.

1. Religion.

Of the matters taught in the elementary school, religion forms still, as it always has done, the first and staple. The maintenance of this place among the objects of instruction, in combination with a system of compulsory attendance, has carried the school in Protestant Germany through a highly instructive experience. This experience, indeed, is still only progressive; the definitive solution of all difficulties is not yet arrived at; but the steps by which the present point has been reached deserve attentive consideration. I can only very briefly indicate them.

The primary school in its origin was a catechismal instruction; a repetition, conducted by a candidate, the sacristan, or other subordinate church officer, of the more solemn Sunday catechisation of the pastor. It was strictly a Protestant institution, born of the spirit of the 16th century. These two points of antithesis, in which the Reformed movement stood to the Catholic church, 1. That, not incorporation into the visible church, but the faith of the individual believer, was the appointed means of salvation; 2. That public worship was to be, not a transaction by the priest, but the joint act of the congregation, where the roots from which the *Volkschule* grew. But Luther and Melancthon knew of no schools but Latin schools. If "German schools" (*Deutsche schule*) are spoken of in the first age of the Reformation, they are so as a substitute for the Latin schools, either for girls or for boys, destined for trading pursuits, and as such viewed with disfavor by the Reformers. Whether the schools were Latin or German schools, they were frequented only by the children of the higher classes, or those destined for a profession or the public service. The people, "*das gesinde und junge Volk*," received no other instruction than that in the elements of their Christian faith. Gradually, other matters were added to the religious instruction, as knowledge slowly diffused itself through lower social strata, and the *Volkschule*, or people's school, came insensibly into existence.

* A remarkable proof of the truth of these remarks is, that since the commencement of the German revolutions of 1848, the only change in the educational regulations, which has been demanded by the people, is, that they should be allowed to send their children to the parochial schools free of all expense, and that the present small weekly pence required from the parents for the education of each child should be paid out of the regular parochial school rates. This has been conceded, and the peasants themselves will now as rigorously enforce the compulsory educational regulations, as the Swiss peasants enforce laws at least as stringent.

In the earlier stages of this progress there was no distinction drawn between secular and religious learning. If the child learnt to read, it was that it might read the Bible. When, in the beginning of the 17th century, the consistories, or the prince as head of the church (*Landesbischoff*.) admonished parents and guardians to be diligent in seeing that their children attended this public instruction, it was as reviving and maintaining the old Lutheran church discipline that they did so. Even after the philosophical reaction against church tradition had spread widely through the upper ranks of society in Germany, we find the royal edicts for the regulation of the primary schools strictly adhering to the ancient spirit and intention. The first general school regulation for Prussia, the *Schulreglement* of 1763 (Friedrich II.,) drawn up by Hecker, and issued by royal authority, with the approbation of the supreme consistory, keeps strictly to the traditional model of the people's school, avoids all abstract principles, and orders only that "the people shall be Christianly taught in reading, praying, chanting, writing and arithmetic, catechism and Biblical history." It enacts in this respect nothing new, *i. e.*, in the matters to be taught, but simply sanctions and enforces the existing practice. The language of the edict is noticeable. The children are to be "Christianly brought up in reading, prayer, &c." (*erzogen in gebet, &c.*) The school is still, in the view of the consistory, a part of the children's bringing up; not merely a place for teaching elementary knowledge. It is not till 1794, during the reaction against the French Revolution, that we find the edicts impregnated with political theory, and the government anxiously taking possession of the schools as a political instrument. The Prussian code, which appeared in that year, first speaks of "the State," and announces that "the public schools and universities are institutions of the State." (*Allgemeines Landrecht*, th. ii. tit. 12.) The school ordinance of the same year, drawn up by the Minister Wollner, emphatically prescribes in great detail religious instruction for "the lower schools." We have no longer the old ecclesiastical tone of the Lutheran consistories, but an evident apprehension of the spread of illuminism as a cause of political disturbance, and an attempt to arrest it by increasing the quantity of religious lessons given in the school. Religion takes its place among the other parts of useful knowledge, as that which tends to make a good and obedient citizen. Though the school is slowly being drawn into the place which the code of 1794 assigns it among the other state institutions, it still remains subject to the inspection and management of the ecclesiastical authorities. The universities and the classical schools had gradually escaped from the control of the church; their teachers are declared to be State servants (*Beamte*), and obtain the privileges of such; but the masters of the lower schools are not admitted into that category. Thus, at the period of the French invasion, the elementary school occupied this ambiguous position: it had ceased to be the catechising school attached to the parish church, yet it had not become wholly secular; it was declared a State institution, and yet continued under the superintendence of the clergy.

Meanwhile the Prussian monarchy was growing in extent, and aggregating large masses of Catholic subjects, in Silesia, Posen, Glatz, Westphalia, &c. The schools existing in these countries were Roman Catholic, *i. e.*, denominational. The law of obligatory school attendance was either already in force, or was without difficulty applied to them. The two religions, Protestant and Catholic, obtained at once that footing of parity on which they still stand in Prussia. Each had its own schools. The Jews were not yet considered "*Schulpflichtig*." There were no other dissenting communities; for we can not reckon the Moravians, &c., as such, who were settled by themselves in colonies where they had their own schools. Thus the school system of Prussia was in fact, and by the force of circumstances, denominational in its general character. Exceptions, however, arose to this simplicity in the working of the compulsory system from a few localities chiefly in Silesia, in which a Protestant population, technically called "*Diäspora*," was thinly scattered amidst the Catholic mass. This exceptional fact had an important influence on Prussian legislation. I have already spoken of the code in 1794 (*Allgemeines Landrecht*) as impregnated with the language of the philosophical toleration theory of the time. The paragraph in question, however, though couched apparently in these general terms, was drawn up by veteran Prussian officials, men of practical routine, and not

of theory; and it can not be doubted that it was suggested by and intended to meet the concrete case of these Protestant congregations in Silesia. The words of the code are as follows:

Allgemeines Landrecht, th. ii. tit 12. § 10. "Admittance into the public schools shall not be refused to any one on the ground of diversity of religious confession. § 11. Children whom the laws of the state allow to be brought up in any other religion than that which is being taught in the public school can not be compelled to attend the religious instruction given in the same."

This last clause is ambiguous, even in the original; it can only be explained by a reference to the Silesian circumstances. The Protestant diaspora, in those localities, too little numerous to support an Evangelical school, were under the necessity of sending their children to the Roman Catholic schools. The Catholic managers of these schools either flatly refused them admittance, or granted it as a favor, under the condition of the children attending all the religious teaching of the school. In the Catholic schools doctrinal teaching, ceremonial observances, and attendance upon church services, form a considerable part of the whole instruction given. It was to protect the Protestant parents against this religious oppression that the seemingly abstract paragraph of the code was in the first instance directed. It is true that, whether dictated by abstract conceptions, or founded on an actual case, these paragraphs introduced the principle of simultaneous (mixed) schools into Prussian law, long before the Code Napoleon appeared on the left bank of the Rhine.

The Catholic school regulation for the province of Silesia of May 18, 1801, went further in the same direction. It orders that "in parishes of mixed population the schoolmaster shall instruct all children, without distinction of religion, in reading, writing, and all other branches which do not pertain to religion. The books used for reading out of shall be such as contain nothing of the distinctive doctrines of either confession. All the children must attend the common prayer or hymn usual before or after school, but neither must contain any thing one-sided or belonging to religious party. The master gives instruction only to children of his own faith. The children of the other party remain away on the days or hours set apart for this purpose, and are to receive their religious teaching from the clergymen of their own persuasion." According to this edict, a number of the Silesian schools would be treated as mixed schools; and any school was liable to become a mixed school when children of the opposite faith were sent for admission. But in practice the intention of the law was wholly defeated. The Catholic clergy, who act with an independence of the civil power which the Evangelical church can not attain to, treated both the Regulation of 1801 and the paragraph above cited from the Code of 1794 as a dead letter.

"Experience has shown that in simultaneous schools the chief matter of education, viz., religion, is not sufficiently cared for, and it lies in the nature of the case that it can not be. The intention of these schools, to wit, the promotion of tolerant feelings between the members of different communions, is seldom or never attained. Disagreements between teachers of the two confessions in the same school, or between the master and the parents of the opposite confession, have often involved the whole *commune* in religious dissension; to say nothing of the other evils inseparable from mixed schools. Such establishments can therefore no longer be regarded as the rule. Exceptions may still be allowed, either in cases of obvious necessity, or when such a coalition is the free choice of the two congregations, acting under the advice of their respective clergy, and with the approval of the temporal and spiritual authorities."—*Cabinet Rescript of April 27, 1822.*

In the National Assembly at Berlin only a small party was found to support a system of general religious instruction in Scripture history and the doctrines common to all Christian sects. This view, though supported in the press by Director Diesterweg, met with little public favor. The method of secular schools with separate religious instruction, whether to be given in the school, or, as in Holland, out of it, by the respective ministers of religion, was the plan at first most generally supported both in and out of the National Assembly. Though the dissolution of the assembly, December 5, 1848, broke off the discussion of the subject prematurely, it had yet been carried far enough to bring

about a general conviction that the practical difficulties in the way of organizing the Prussian schools on this system were all but insuperable. It was called to mind that the original foundation of so many of the schools by the church had connected school and church in many material ways. The funds out of which the master was paid were often church revenues; partly endowments; partly collections in the churches. Many schoolmasters are at the same time officers of the church, and make up a considerable part of their income by holding such offices. The school buildings and master's dwelling-house are often church property, or the church-chest is liable for their maintenance and repair. It was considered that the secular system, however it might be liked in the towns and by the middle class, would be very unacceptable to the country people; that, were an attempt made to carry it out, a powerful party would be formed against it, who would erect rival schools, which, supported by the religious consciousness of the people, would empty the State schools. The result of the attempt would thus be to call into being a net work of exclusively church schools, and so to make education more sectarian than before. Accordingly the Constitution (*Verfassung*) of January 31, 1851, contains the following article:

Art. 24. "In the ordering of the public people's school regard shall be had as far as possible to denominational relations. The religious instruction in the people's school is under the conduct of the respective religious bodies."

This article probably represents pretty fairly the result of the previous discussion to which the subject, both in the assembly and by the public at large, had been submitted. As far as legislation is concerned, no further alteration has taken place since 1851.

Were the question asked, Is the Prussian system at the present moment a system of mixed or denominational education?—the answer must be, that there is no general law for the whole kingdom on the subject. According to the letter of the law any *commune* is free to have a mixed school, if it can agree to do so, and can obtain the consent of the authorities; but so strong is now the feeling against mixed schools that it is scarcely likely that this consent would ever be asked, or, were it asked, would be granted. By a mixed school (*Simultanschule*) is meant one in which the teachers are taken in equal proportions from the two religions. In a village school, where there is only one master, the method was to appoint a Protestant and a Catholic alternately, on the vacancy of the office, an expedient which, at one time not uncommon in Posen and East Prussia, has ceased since 1856. The strictly secular school was introduced into the western provinces with the French law, as a necessary portion of the municipal system of that law in which the *commune* is a purely civil division; but though the Code Napoleon is still retained, a cherished possession, by the inhabitants of the left bank of the Rhine, the schools have almost all become confessional schools, and this without any legislative enactment, but by the mere current of circumstances. The *commune* still remains a civil corporation, with the obligation of building and maintaining both church and school for the inhabitants within its boundaries; but the preference of confessional schools is now so decided that Protestants and Catholic have invariably separate schools. In a parish where the Protestants are in a minority, for example, they will build and endow their own school, and then oblige the *commune* to pay for it, and to contribute to the master's salary. They retain the right, all this while, to send their children into the original, or Catholic school, as it is then called; for the school, though legally common, has become in fact Catholic by the secession of the Protestants. The term of the French law, "*écoles communales*," which once conveyed the meaning of "civil" or "secular," no longer does so, but is used in Prussia (*communal-schule*) in contradistinction to "private" schools. The Prussian *Alg. L. R.* knows the lower schools only as *Gemeinschule*. In common parlance they are spoken of as *Volksschule*—schools for the people—which is the term used in the Charter of 1851: but the word having acquired offensive associations in 1848–1849, they are now known officially as *elementarschule*.

The principles attempted to be carried out in this branch of teaching in the elementary schools over the whole extent of (at least) North Germany are those embodied in the Prussian *Regulativen* of the 1st, 2d, and 3d of October,

1854. The struggles between the advocates of the new and the old method of teaching has taken the shape of controversy about the Prussian *Regulativen*, though this document did not originate but only gave the sanction of authority to the educational views of the church party. The *Regulativen* proclaim in their preamble that "the whole life of the century having reached a point at which a decisive transformation of it has become necessary, the school also must enter upon a new path. The life of the people requires remolding, and building up, in conformity with its originally given and eternal realities, upon the foundation of Christianity, which in its legitimate form, that of the church, ought to pervade the family, the profession, the *commune*, and the State." This decisive revolution is to include the religious teaching in the school. The principles which had previously governed this part of the instruction may be briefly stated as follows: In the old German school, which we may call for distinction sake the school of the eighteenth century, religion had become merely one among the other branches of instruction. The catechism and the Scripture text were learnt by heart, repeated in a mechanical way, and no attempt was made to explain or understand them. A reform corresponding to that which the Pietists worked in the church was worked in the school religion, if not by Pestalozzi himself, at least by the movement which originated with him. The mechanical method was banished; the child was not to learn any thing it did not understand; the dogmatic part of Christianity was to be left for the period of preparation for confirmation by the pastor, and the schoolmaster was to confine himself to the history of the Old Testament, the Life of Christ, and the practical precepts of religion. Further, religion, it was seen, could not be inculcated by being taught to the understanding. It was not merely to have a place among the branches of instruction, but must pervade the discipline of the school. The child must not merely learn the truths of religion, but must be religiously brought up; religion and virtue must be presented to its will as a discipline, and to its heart as a devotional sentiment. These sound pedagogic maxims, however, led, in conjunction with the theological bias of the time, to a comparative neglect in the school of external religion and of the special doctrines of Christianity. The Pestalozzian teacher liked to teach nothing but what had in it a meaning for the child's capacities; and the pastor found thrown upon his hands the irksome task of making the child commit to memory the words of the catechism, which it ought to have learnt at school. Luther's Catechism dropped into desuetude, and others (e. g. Dinter's) were introduced, which put forward the truths of natural religion, and the general and perceptive part of Christianity.

The two great evils in the religious teaching of the Pestalozzian school which the *Regulativen* propose to remedy are these: the contempt of the church and church authority, and the disregard of doctrinal truth. The school is to be restored to its place as an organ of the church for training the children to church membership. The specific doctrines of the church are not to be reserved for the end, but placed at the beginning of the school course; at aet. 10 or even aet. 8. K. von Raumer of Erlangen thinks they should begin with aet. 4. "The child," says the *Regulativen*, "which has been by baptism incorporated with Christ's church, is to enter at confirmation into the congregation as an independent member of the same. Meanwhile, the school receives the children, in order to prepare them for the conscious reception of all the gifts of grace which the scheme of salvation contains, of which gifts they are prospectively heirs. The teacher must be a consecrated person, able to say, as Christ's representative, 'Suffer little children to come unto me, for theirs is the kingdom of heaven.'" The means of this preparation which the school is to employ are then briefly summed up in the *Regulative*. I may describe the mode in which the principles which the *Regulative* of October 3, 1854, lays down are attempted to be carried out in the Prussian schools, under the following heads:—

1. *School prayers*.—School is opened and concluded every day with prayer, in which all the children join. The prayer consists of the Lord's Prayer, the Morning and Evening Benediction, to which is sometimes added, for elder children, the prayer for the Universal Church, and other prayers from the Liturgy in use in the churches. This is all that the *Regulative* prescribes; but in some schools special school Liturgies are introduced for occasional use,

monthly or weekly, and on commemoration days (the Reformation, king's birthday, &c.) in special seasons as Advent, &c., when the Creed and Ten Commandments are sometimes added. There are such school Liturgies drawn up which contain an order of daily service for every day in the year, but I have not happened to meet with any school in which these were used. In all the schools the children are accustomed to observe the order of the church year. Every Saturday the gospel for the following Sunday is read in class, and its bearing on the church season explained. In the course of the child's school-time it has committed to memory the whole of the gospel portions (*Perikopen*) for the year. At the periods of the great festivals (the days themselves mostly fall in the holydays; New Year's Day, Easter, Pentecost, the Reformation, All Souls,) the schoolroom is decorated with flowers, greens, or immortelles, and appropriate hymns out of the church hymnal sung. It is the duty of the teacher to inculcate on the children the obligation of regular attendance at church on Sundays and holydays, himself to set them the example, and to urge on the parents to do the same. In order, however, to meet any tendency to formalism and hollowness (*Heuchelei*) which might arise, a movement is springing up for infant services (*Kindergottesdienst*). These are to be held in the school-room, either by the master or the minister, and are to replace the church service (*Predigt*) for unconfirmed persons, having prayers, hymns, and sermon all adapted to the comprehension of children. These sermons to children are designed, says the preface to a volume of such sermons preached in the infant service at Erlangen, "to bring home in an edifying way to the child's heart the treasures which the Word of God contains for the sanctification of childhood, and which mere religious instruction fails to convey." Similar in character are the children's prayer meetings (*Erbauungstunde*) held at Zwickau, Leipsic (in the hall of the *Gesammtgymnasium*,) and other places. Besides the common morning and evening devotion, the hour of the religious lesson is to have a devotional character. Every week a text is learnt, and a hymn, verse by verse, daily. The hymn verse for the day is to be devotionally sung as part of the lesson. "The Christian teacher must make it his especial care to keep himself in such a steadfast frame of contrition and grace that he sincerely and with might pray audibly with his scholars for them and for himself. The spirit of joy and truth with which he can use such prayer will be the best measure of his fitness for his task. The true life of the Christian school is, that, founded on God's Word, and placing himself under his guidance, it be an institution profitable for doctrine, for reproof, for instruction in righteousness." (*Reg.* October 3, 1854.)

2. *Scripture*.—"The Bible is the field in which the Christian elementary school has to solve the problem of how to ground and build up the Christian life of the youth intrusted to it." (*Regul.*) In teaching Scripture a two-fold method is pursued: 1. The historical contents of the Old and New Testament are taught to the children in chronological order, beginning with the creation of the world. The object of this lesson is not so much knowledge of the Bible as to use the Bible as a revealed record of the progress of the Kingdom of God on earth. The child should gain an experimental knowledge of this history. In its two first years it does not go beyond the simpler histories, the creation, the flood, the call of Abraham, the history of Moses, and some of the plainer Gospel narratives; and when it can read fluently it proceeds with the later history of the chosen people. The early lessons are given by the teacher relating the history strictly in the words of Scripture, then explaining what may be necessary, and then teaching the children to repeat as much as they can recollect, keeping them also closely to the inspired words. It has been much disputed whether the Bible itself or a book of selections should be used in this lesson, after the children have learnt to read. The most generally approved practice now is to use some book of select histories (*Kinderfreund*,) in which the exact text of the authorized version stands, without addition or alteration, but with omissions. 2. The Bible is never used as a "reading book;" but the elder classes read select portions of the psalms, prophets, and epistles (but these sparingly,) as a religious lesson. They may also supplement the lesson of Scripture history by reading with the teacher at greater length the select histories already gone through. Some of the normal lesson plans for school dis-

tricts prescribe a carefully selected series of Scripture histories, and the master is not at liberty to deviate from it.

3. *Catechism*.—The principle which is to govern the teaching of catechism is, that the dogmatic instruction of the school is only introductory to that of the church. The school is to confine itself to inculcation into the memory of the form of words, and the church's preparation for confirmation has the right of expounding their sense. The master is strictly prohibited from founding any catechetical teaching upon the matter of the catechism, though he ought to see that the children not merely repeat it correctly but understand the words in which it is conceived. The master is to carry the child through the mechanical stage, in order that the pastor may take it up, and first initiate it into the church's sense. This regulation has for its object, not merely the subordination of the master to the pastor, but the counteraction of that axiom of the Pestalozzian school, according to which the child was never to hear that which it did not understand. The old method of instruction is now to be revived in all branches, but especially in religion, as the only security for the transmission of the truth of revelation from generation to generation. No part of the new method has encountered more difficulties in carrying through than this. The old teachers of the Pestalozzi period, who had learned to look upon mechanical inculcation with detestation, and the most agreeable part of whose labor was that catechetical Socratic method by which the young mind was led on step by step to recognize truth, found the greatest difficulty in bowing their necks to the yoke. And all skilled instructors, and just in proportion to their skill, felt the degradation of being subordinated in their own profession to the pastor. The pastor, in virtue of his profession, his income, and his university education has a social position above that of the schoolmaster; but this very university education, however it may have qualified him as a theologian, does not include the art of teaching children, which the master has acquired by a long and laborious process before, in, and after the seminary. Nor are the masters alone recalcitrant. Many of the older school councilors have thought it necessary to send round circulars in their districts, which put a less strict construction on this enactment of the *Regulativ* (e. g., Potsdam, Merseberg, Breslau.) All the other modern catechisms are now banished from the schools throughout Prussia, Saxony, Hesse, &c., and only Luther's (except the Heidelberg) admitted into the school. As to age, the *Regulativ* prescribes that up to set. 10 the child shall only learn the five "chief articles" (*hauptstücke*) i. e., the Lord's Prayer, the Creed, the Ten Commandments, and the Words of Institution in the Sacraments. At ten it begins to learn Luther's exposition upon the same.

4. *Hymns*.—The learning of hymns from the church hymnal holds an important place in the school instruction, corresponding to that which the hymnal itself (*gesangbuch*) holds in the congregation. As to quantity, the Prussian school now requires that every child in the school shall, before it quits, learn at least thirty; but the practice of many schools raises this to fifty, or even more, on the same principle of first furnishing the memory with a store of words, and leaving them to germinate in the understanding. With respect to the choice, the *Regulativ* gives a list of eighty hymns, out of which the thirty necessary may be selected by the local inspector. The principle of this selection is to take such hymns as treat the fundamental points of Christian faith and practice. There is at present much controversy, not about the selection but about the text of the school hymns; for as the hymnals in different districts vary infinitely, not only in the hymns they contain but in their text, it is wished by some that a uniform text should be introduced into the school, this text to be, of course, the original text of the hymn as it came from its author. The government in Prussia certainly have the power of ordering this in the school, but as it could not introduce the same book into the congregation, which is extremely tenacious of the hymn book in use, whatever it may be, the consequence would be, that the children would be learning one text in school and singing another in church. And though a recurrence to the original text would almost always be a gain in purity of expression and correctness of theological language, yet would an attempt at uniformity weaken that local coloring or provincialism of thought which has been infused by gradual adoption into the hymns in use in a district. What would be gained in point of taste and purity would be lost in devotional effect.

Practical Aim of other Elementary Studies.

Whatever may be the case in the classical schools, there is a general consent now to confine the number of subjects taught in the elementary schools to as few as possible; to select such as bear on practical life, and to teach them in as simple and elementary a method as possible. That this tendency is equally conspicuous in every district of the vast complex of the German Federation, I do not say, but wherever I have gone I have invariably found that this tendency to the practical, and dread of any thing resembling the empty phrase-mongering method of former days, was in proportion to the vigor and general advance of the schools in the district. Where the school system was lax, there the vanity of lecturing, instead of making the children learn, might be found still lingering.

Whatever may be the shortcomings of the Prussian school, though its standard of attainment may be below that of Wurtemberg or Saxony, it earns, before others, the praise of thoroughness and practicality. It may aim at little, but its principle is to achieve it. It may look too little to the cultivation of the imagination, but it is possessed by a practical spirit which tolerates no showing off. A Prussian *Schulrath*, in visiting a school, may be blind to many patent faults, but his eye is quick as lightning to detect the least trace of hollowness or pretentiousness in the teaching. From the sensitiveness of every one connected with the school on this point, it is easy to see that they have gone through a painful experience connected with it. It is one great advantage of centralized school management, that all temptation to the exhibition of superficial accomplishment is taken away. The elementary school has not to approve itself to a casual public, but to the experienced eye of professional inspection only.

This practical aim the elementary school of North Germany now strives to realize by,—

1. Limitation of the number of matters taught in the school. The ambition of the past generation of schoolmasters was to teach as great a variety of matters as possible; now, the schools are strictly confined to elementary teaching, reading, writing, the four rules of arithmetic, and singing. The only addition to this allowed in the village one-class school is one hour per week for drawing, limited to geometrical figure-tracing; and the singing may be enlarged to the execution of liturgical chants, if approved by the local inspector. Three hours per week also may be allotted to natural phenomena.

2. Compensation for what is thus lost in extent by greater perfection in the handling. The elementary school is not to communicate knowledge, but to qualify the child to perform certain simple operations. The instruction must be thorough, but it must be elementary. The master's business is, not to talk, or even question, but to make the scholars practice. It is not enough that the child learns how; it must show that it knows how by the facility with which it performs. A child at school must be treated like an apprentice, who learns his trade simply by being set to work at it.

3. Concentration of teaching, as it is called. By this is meant that the various matters thus learnt in the people's school group themselves round a common point, like circles which have a common centre. This centre is the child and his vocation in life. Not that the elementary school is to undertake to prepare for different trades and industrial callings; far from it. The attempt made to introduce such branches under the name "Knowledge of common things" is a violation of this concentration. Industrial training belongs to special schools. The elementary school is to confine itself to that elementary skill which every citizen needs, whatever his future calling may be. What the child has to learn are not so many distinct subjects, but the connected use of the organs, speech, sound, sight, hand, &c., with which nature has furnished him.

The matters taught in the Prussian schools, and the distribution of time among them in a one-class village school, teaching 26 hours per week, would be as follows:—

Religion,	6 hours.
Reading and writing,	12 "
Ciphering,	5 "
Singing,	3 "

In the upper division one hour per week may be got for drawing, by deducting it from the writing lessons. Separate lessons on natural phenomena can hardly be given in the village school; but the teacher is to take the opportunities which the reading-book offers of bringing natural objects from time to time before the class. For a school with the full complement of classes, i. e., six, or a class for the children of each year, except the two last, who are classed together, an enlargement of the lesson plan is obtained at the expense of the twelve hours' writing and reading.

2. Language—Speaking, Reading, and Writing.

There is no part of elementary teaching in which the scientific mind of the German has been more successfully applied to shape practice than that of language. A long series of carefully-watched experience has brought the method to a wonderful perfection. This can not, of course, be seen exemplified in any one school, but must be gathered from an inspection of schools in a variety of provinces, with the various obstacles which dialect, conformation of the organ, slowness of conception, present to be overcome by the instructor. From the deaf and dumb institution up to vocal melody, through all the grades of infant school and reading class, the cultivation of the speech-organ is an object of assiduous attention.

First, an important step has been made, by banishing grammatical lessons, i. e., the analytical mode of learning language, from the elementary school. In the classical school, grammar, as an elementary logic, subserves the chief purpose of such schools, viz., the training of the intellectual powers, and is therefore in place in such schools. From the practice of the Latin schools the grammar was transferred to the people's schools, which were of later origin; and as the development of the thinking powers is now recognized to be no part of the object of such schools, the anatomy of language is properly banished, as a superfluous study. The mother-tongue must be learnt in these schools practically by using it. It is not a knowledge to be studied, but a power to be exercised. The language instinct (*sprachgefühl*) which every child possesses must be cultivated by assiduous exercise, of which reading, speaking, writing are only so many various forms. The language instinct is the true guide through the intricacies of grammar. *Secondly*, the extent to which language must be pursued in the people's school is decided by the purpose of the school as above laid down. The child requires a command of language as one of the necessary qualifications with which to commence life. Less than this would create a positive disability to its disadvantage. The language in which it ought to be qualified should not be the dialect of its province, as confining it within too narrow a sphere. It must be introduced into the universal language of its countrymen; the language of books and writing. The language instinct which nature has given it requires to be transferred from its mother dialect to the common German tongue, and practiced till it has acquired a complete power, both of understanding what others mean, and of conveying its own meaning to others (*sprachverständnis, Sprachfertigkeit*). This is the end which the elementary school must keep in view.

With respect to learning to read, no particular method is prescribed by the Prussian regulations. The schools are left free to employ that which recommends itself to them for the time, and to change it from time to time. The phonic method is still common, but it appears to be in course of being superseded by the *schreiblesen*.

Concentration of teaching is kept in view in the endeavor to make the reading book as much as possible the centre of the instruction given in the school. Neither in Prussia nor in any other state is one reading book prescribed for all the schools. Consequently there is a continual emulation among the different countries to produce the best reading book.

The idea which now guides the various compilers is that such a reading book ought to be a *volksbuch*; a book that will be relished in the cottages as a sort of portable encyclopædia of useful information; but this information must not be conveyed in a dry, technical way, but put in a practical, concrete form. The reading books most in favor in North Germany just now are the Silesian books, compiled on this principle. They can not by any means be held to preclude

further attempts, having the obvious faults of insinuating moral and religious lessons out of place, and of a feeble negative tone, owing to the exclusion of every thing that could possibly give offense to the taste of the higher classes. In South Germany, the Wurtemberg reading book, drawn up by a committee of teachers expressly appointed for this purpose, is the favorite.

3. Penmanship.

In this branch, almost more than in any other, time for acquiring the mechanical facility of arm and hand is necessary. If the teaching kept pace with age, the children of each half-year would be in a different stage of progress, and want a different task. This, if attempted, is done by giving them more and more advanced slips of lithographed copy. Every schoolmaster knows, however, how long the copy system may go on, and what little effect may be produced. When, on the other hand, the copy is set by the master on the black-board, and the writing superintended throughout by him, preceded by instruction, followed by correction, the rate of progress can be very greatly accelerated; but this demands an amount of the master's time which can only be given in a six-class school, *i. e.*, where there is a separate master for each year's children.

4. Arithmetic.

In ciphering, the practical end of the people's school banishes, on the one hand, all the lessons in the theory of number which were formerly given, and, on the other, avoids with equal care the working of problems by the mechanical methods of the multiplication table. Mental arithmetic, not permitted as a separate exercise, as a useless fatigue of brain, is used to correct the mechanism of the slate, and is restricted to the system of enumeration as distinct from that of notation. Setting sums to work in abstract number is to be done as little as possible; in the lower class altogether avoided. The examples should be always in concrete number. This latter rule is deduced from the principle of concentration of teaching, which is further carried through in the requirements, that the four operations shall not be taught as separate processes, each governed by its separate rule, but in their mutual connection; nor fractions be made a distinct branch. The true division which is to separate the lower from the upper class in arithmetic is the magnitude of the quantities dealt with. Thus a child is carried through all the operations, fractional and unitarian, in the tens before it advances to the hundreds, and so on. Geometry, a favorite subject with the old masters, is not now admitted into the one-class school, though we find it sometimes taught in the upper classes of a six-class school in connection with designing.

5. Geography, History, and Natural History.

Separate hours for geography, history, and natural history, though not prohibited, are not encouraged in the Prussian schools; and special manuals for these subjects are not in use. What instruction can be given on such points is to be suggested by the reading book. Where, however, a teacher has himself a fondness for natural studies, or a peculiar facility of illustrating the subject, he would not be interfered with in devoting an occasional hour to a lesson, which is always a favorite one with the children. Where instruction is given in geography, it is now a settled maxim that this shall be in the form of knowledge of home (*heimathskunde*). Instead of commencing with the remote abstractions of mathematical geography, and then proceeding with distinct lessons on political and physical geography, the child sets out from that one spot of earth with which it is acquainted, and learns whatever time and opportunity allow of its position, relations, character, &c. This is the basis of reality upon which whatever can be afterwards learnt of the geography of Germany and of Europe is built.

6. Drawing.

Drawing is not often carried in the elementary schools of North Germany beyond the simplest linear free-hand drawing from flat examples. In the adult schools, however, this branch is assiduously cultivated, as it is one of the most popular; and not only single scholars but whole classes learn drawing from

solid models, according to the method of *Depuis*; shaded drawing of ornament from casts in relief. Between the schools of North and those of South Germany a marked difference prevails in this accomplishment. In the Bavarian schools, e. g., the time given to elaborate penmanship, to map-drawing, ornamental designing, and the encouragement of taste, has nothing corresponding to it in Prussia, where the accomplishments and amenities of life are rigidly excluded from the people's school.

7. Singing.

In this branch the one object kept in view is practice of the voice. The children learn to sing from notes, or by the ear, indifferently, but the pieces performed are strictly limited to the simple church tunes and national airs. Variety is shunned, but great pains are taken in practicing what is learnt. The words must always be first well studied and explained, that the children may understand *what* they are singing. Besides what is sung in the course of devotion, and at other times, three hours per week must be devoted to practice, and the tune to be sung in church on Sunday practiced in the week before.

These are the routine matters of instruction in the elementary school. It may strike some persons at the first sight of so narrow a lesson plan, that if this be all that is done in the Prussian school, the boast of its national system of education, so long heard throughout Europe, has very little foundation. The controversy on this very point, viz., the contents and method of the instruction to be given in the elementary school, is the leading feature in the present aspect of the North German schools. It meets the inquirer at every turn. Whatever school he may visit, or with whatever schoolman he may converse, the first thing he is made to feel is on which side in the dispute his new acquaintance is.

Without entering into the history of this controversy, I sum up the result of my observations on the methods of secular teaching in the elementary schools, in the following general remarks:—

1. The limitation of subjects taught and simplification of method now being pursued is not a barren deduction from abstract theory, but a practical reform forced on the school by the unfavorable results of an opposite method, and which is gradually making its way through the length and breadth of the land, independent of any favor from particular governments or political parties.

The experience thus dearly purchased is not merely that many things must not be taught to children if they are to learn anything thoroughly, a very generally-admitted truth, but it is distinctly this:—The whole school-time from 7 to 14, at the rate of (say) 20 hours per week, is not more than enough to secure to children the mastery over the general instruments of future cultivation, the organs of speech and song, the material of language, the relations of number, the pen and the pencil. The child is not to be taught to know (*wissen*), but to be able to do (*können*). Elementary education is not knowledge (*Wissenschaft*), but capacities (*Fertigkeiten*). The subjects which have been turned out of the Prussian school, have been so, not because they were useless or unfit for the child to learn, but because it has other things to acquire first. It may be highly desirable that children should have industrial training, as one urges, or artistic training, as another wishes; that it should learn instrumental music or physical science; but average boys and girls can not learn these things without sacrificing the elementary skill which must be acquired in childhood, and can not be properly acquired later. The efforts to restrict the elementary school to the acquisition of this skill have not been efforts to keep down the education of the masses, but to place it on the only solid foundation. The duties of the elementary school are not arbitrarily defined; they define themselves as soon as it is understood that schooling is to end at 14. This is the difference between the elementary school for the children of the laborer, artisan, &c., and for those of the *bürger*, viz., that the one leaves school at 14, and the other does not. The one, therefore, must give all its time to obtaining a sure possession of the elementary capacities. The other can spare some of its time for the acquisition of knowledge before 14, because it will continue to practice reading, writing, &c., long after 14.

If this be admitted, it acquits the elementary school of neglect in not per-

forming what is not its proper work. But it does not make it less necessary that that work should be performed. The weakness or incompleteness of the new movement is not that it has dismissed industrial, artistic, and a whole host of scholastic subjects from the elementary school, but that it has not adequately provided for their being taught elsewhere. There are adult schools (*fortbildungsanstalten*), and several of these, in great towns, do good work; but they are not universal; are neglected, if not discouraged, by the school administrations, and even as voluntary efforts are very insufficiently organized.

The strict limitation of subject applies in its strictness to the one-class village school only. The six-class town school, with a separate master for the children of each year, can, without the same danger, extend its curriculum a little. There are, further, various shades of higher schools in towns; what are called *erhöbete Volksschule*, or the *vorschule*, preliminary class to a middle school, and other gradations, in which, if the parent is willing and able to pay an advanced fee, a more complete schooling may be obtained.

The third Prussian *Regulativ*, it must be remembered, is issued only for the one-class village school, and says nothing of the many class schools in towns or populous districts. If inspectors or superintendents have interfered to check a wider range of subject in these last, and have, as is complained, discouraged the master in attempts to bring the children forward, this is an abusive application of the *Regulativ*, and is probably one of the causes which have tended to create opposition to its sound principle. The dispiriting effect of the *Regulativ* itself upon the teacher has been also much complained of, and truly felt. It was no doubt mortifying to old and established masters to have all at once to lay aside some subjects which both themselves and their pupils especially relished, and which they had found most highly successful; natural science, or history; their exercises of thought and perception. It is not to be denied that the treatment of many deserving and exemplary masters by the administration, in bringing about its reform in the four years 1854-1858, was harsh and inconsiderate. It was, in fact, the triumph of a party, and was accompanied by much personal suffering to the vanquished.

In one point—not its primary, but an important one—it is admitted by all the practical men that the new ordinance has overshot its mark. This is in the excessive quantity of learning by rote which it imposes. It is not merely that to exact by a printed law the same quantity of learning-off from all children without reference to their capacity, which in this respect differs most widely, is ridiculous, but the principle itself is erroneous. The labor of the Pestalozzian school to develop mental power by abstract and formal exercises of thinking was, if not erroneous, at least out of place between the ages of 7 and 14. The child must have real information upon which to think, and this basis of solid fact must be inculcated and made its own property, not merely taught it. So far the new method receives universal acceptance. But to suppose that this material is insinuated into the mind by learning off masses of written words, is now seen to be an error as unpractical as the other. Experience proves that the children have forgotten all these repetitions within a very short time of their leaving school. The new method did but exchange one exaggeration for another. The quantity of pages now to be committed to memory not only takes up much valuable time, but entirely overwhelms all the faculties of the understanding. But even this is far from the whole of the evil. The teaching in the school works upon school examinations. As so much of the child's time is taken up in learning off, a corresponding importance is assigned it at examination. Accordingly, examinations in Prussia are getting more and more mechanical. The local inspector considers it his first duty to ascertain if the hymns and catechism, the Bible extracts, and pieces out of the reading book, have been got by heart. The emulation turns upon who can recite most. There is hardly any inquiry into whether what has been so learnt is understood.

3. Another weak point in the German method lies in what constitutes its excellence. The teaching is all class teaching; the individual child is lost in the class, as the soldier is lost in his company. The power of class teaching to quicken and incite is so far beyond what can be got out of individual instruction, the whole result attained is so much greater, that it is apt to be thought that what the class produces must be the possession of each child who com-

poses it. This fallacy is not attended to in the German schools, and is precisely most deceptive in the best. It is, indeed, the power of the aggregate class with which the teacher works all his effects. Even in point of discipline, it is not the terror of punishment, but the organization of the class, which tames the wild infant, coming, perhaps, from a home in which it has not acquired the least notion of law and order. Many children bring this with them, but with many it requires time before they understand what it is that is required of them in the submission of the will to the general purposes of the school. The same holds good of teaching. The contagion of example and emulation rouses the curiosity, commands the attention, and quickens the perceptions generally, both of teachers and taught. I can convey no idea of the excitement of a catechetical lesson from a skilled master with a clever class in a German school. The master all animation, the children all eagerness. The questions rising one above the other by the gentlest gradation from the simple to the more complicated, evolving the subject with a methodical clearness equal to demonstration, question and answer passing so rapidly that it is as much as the spectator can do to keep up with it. The intellectual gratification to the children from the process is so great that I have seen them, when the hour was ended, entreat that the lesson might go on, instead of going out for their ten minutes' play interval. The good effect of this class drill in attaching the children to school and to the teacher, in whetting their appetite for learning, is apparent enough; but as a measure of the mental cultivation each individual in the class is receiving, such a display is deceptive. The problem was really worked by the teacher, followed not by each child, but by the aggregate only. The children have seemed to solve difficulties really beyond their reach. But not only is the class, not the child, that which is taught in the Prussian school, but it is the class which the school councilor inspects in examination. It is the goodness or badness of classes which he tests; which he enters in his returns. This runs through the whole Prussian system; nor did I ever meet with any schoolman who thought it a defect, however he might be alive to other faults in that system. In the schools of Anhalt (Bernburg) a system has been introduced, pedantically called the "monothetic," of which the principle is that the whole class moves, acts, and is regarded as a single individual with a single will.

4. This leads me to speak, in the last place, of that standing complaint against all German governments—over-governing (*vielregieren*). It is not only English and American visitors who are aware of this canker in continental institutions, but many German public men, even those who administer these institutions, are quite alive to its practical inconveniences. Knowing myself how liable a foreigner is to misplace his criticism on this head, I shall do no more than mention one or two points, in which I believe I have observed pernicious effects from government interference, without venturing to condemn a bureaucratic system wholesale. (1.) Till 1854 there was in Prussia no general law on education. Single matters were ruled from time to time by ministerial rescripts, valid alike for all the provinces; but with these exceptions, each department (*Regierungsbezirk*) followed its own school usages. The province of Prussia was the only province which had an educational law under which all the schools in the province were placed. The issue of the *Regulativen* of 1854 was the first invasion of this sound principle of Prussian administration. It regulates the matters to be taught in the school, and orders the same lessons for every one-class elementary school in the monarchy. It has been questioned if the executive did not exceed its powers in some of the matters handled in the third *Regulativ*. But allowing the legality, I believe the attempt to prescribe a uniform quantity and quality of lessons for all children alike, in provinces differing so widely in the cultivation and natural powers of the native population, to be indefensible. (2.) Over and above the third *Regulativ*, the number of points ruled by central or departmental authority, and on which, therefore, no variety of practice is allowed, is become very great, and is yearly increasing. On matters of external organization this procedure may be necessary, and can do no harm; but where the method of teaching and the matters taught are in question, the case is different. All the improvement and advance hitherto made in the art of teaching in Germany has been the result of experiment; of trial chequered with failure and success. For fifty years or more,

theory and experience had been in unrestricted movement in the field of education, and had been working in harmony with the other influences of cultivation; but since 1848-9, government has stepped in, not, as before, to organize the school, but to prescribe a particular method of teaching; to decide between two contending views of education, which is right. Whether or no the Prussian executive has chosen the right side in this conflict, is not here in question. Believing myself the principles of the third *Regulativ* to be in the main right, the question is, has their prevalence been furthered and permanently secured by their being stereotyped as part of the immovable bureau machinery of Prussia and the other States which have followed her example? Is not all further experience, all improvement, all modification, all wholesome check from an opposing system, precluded, and a certain reaction prepared against useful truth? The free circulation of educational periodicals, in which the practical topics of the school were theoretically discussed, contributed in former days greatly to diffuse and keep alive an interest in the subject. Much absurdity was doubtless vented in this way, but the older numbers of many of these series contain, besides valuable papers, a true picture of the movements of scholastic opinion. Now, these are jealously watched by the Prussian school administration. Those which admit free discussion are prohibited. Besides issuing its own *Centralblatt*, the bureau has got some of the leading provincial magazines into the hands of servants of its own. The consequence is, that educational literature in Prussia is become sterile; and it is to the periodicals published in the smaller states (Bremen or Weimar) that we must look for any representation of what is being thought or said in Germany on the subject of elementary education. (3.) The continual prohibition (*Verbot*), by authority, of little things of no moment—prohibition to attend such and such a teachers' association—prohibition of one or another manual or reading book—are multiplied to a degree which not only keeps the schoolmasters in constant terror of transgressing some one of these many interdicts, but displays a spirit of petty tyrannous interference which is unworthy of authority, and creates exasperation in the subordinates. (4.) As to whether the general character of the people appears to have been distinctly affected by an advance or decline of education, I must confess that I can not find any one of the national characteristics of any of the German populations which I can on reliable grounds trace to the methods or the matters taught in the schools. I have heard and read many such speculations, some very plausibly supported; but, tested by my own observation, all equally conjectural, and often contradictory.

A shrewd and well-informed traveler (Laing—*Notes of a Traveler*), writing in 1842, pronounced the Prussian educational system to be "a deception practiced for the paltry political end of rearing the individual to be part and parcel of a despotic system of government; of training him to be either its instrument or its slave, according to his social station." This was in 1842, at the very time when we now hear it echoed throughout Germany by all the governments that the schoolmasters of the national schools were sowing the seeds of the outburst of insubordination and democracy which occurred six years later.

There is one characteristic of the German people which is almost always referred to an educational cause. It will not be denied, I suppose, that the Germans generally, but especially the subjects of Prussia, Hanover, Brunswick, Mecklenburgh, Hesse, &c., are deficient in energy of character. This is not only observed by foreigners, but felt by the Germans themselves. It shows itself in a want of independence or self-reliance—an inertness of will (*Trägheit*)—a sensitiveness to opinion—a helplessness in novel situations—an over-reverence for authority—a declining of decided action—a shrinking from straightforward language and specific judgments. As to the existence of this characteristic, I have scarcely met with a dissentient voice. I have also generally found it supposed it must have something to do with the bringing up; but I have heard it attributed to almost every different method of bringing up; to learning too great a variety of subjects, and none deeply (*Vielwissenheit*); to going too profoundly into the bottom of one subject; to too severe discipline in the schools; to the want of discipline; to exercising the reasoning powers without furnishing the memory (*Geheimrath*, Wiese); to overloading the memory without training the understanding (*Diesterweg*); to want of religion; to

too much religion. Instead of advancing any conjecture of my own as to the point of connection between this failure in character and the school system, I prefer to transcribe some remarks of Mr. Horace Mann, in the Report of his Educational Tour:—

"A proverb has obtained currency in Prussia which explains the whole mystery of the relation between their schools and their life: 'The school is good; the world is bad.' The quiescence or torpidity of social life stifles the activity excited in the school-room. Whatever pernicious habits and customs exist in the community, act as antagonistic forces against the moral training of the teacher. The power of the government presses upon the partially-developed faculties of the youth as with a mountain's weight. . . . When the children come out from the school, they have little use either for the faculties that have been developed, or for the knowledge that has been acquired. Their resources are not brought into demand; their powers are not roused and strengthened by exercise. Our common phrases, 'the active duties of life'—'the responsibilities of citizenship'—'the stage'—'the career of action'—'the obligations to posterity,' would be strange-sounding words in a Prussian's ear. There government steps in to take care of the subject almost as much as the subject takes care of his cattle. The subject has no officers to choose; no inquiry into the character of candidates to make; no vote to give. He has no laws to enact or abolish. He has no questions about peace or war, finance, taxes, tariffs, post-office, or internal improvement, to decide or discuss. He is not asked where a road shall be laid or a bridge shall be built, although in the one case he has to perform the labor, and in the other to supply the materials. His sovereign is born to him. The laws are made for him. In war his part is not to declare it, or to end it, but to fight it, and to pay for it. The tax-gatherer tells him how much he has to pay; the ecclesiastical authority plans a church which he must build; his spiritual guide prepares a confession of faith all ready for his signature. He is directed alike how he must obey his king and worship his God. Now, although there is a sleeping ocean in the bosom of every child that is born into the world, yet if no freshening, life-giving breeze ever sweeps across its surface, why should it not repose in dark stagnation for ever?"

The influence of the elementary school on national character and national civilization appears to me to have been estimated too highly in this discussion, and power for good and for evil ascribed to it which it does not possess. It is not till after 14, till he has come in contact with the world, with the social order as it is arranged for him, that the German youth acquires that torpor which is so much complained of, and that which was docility in the child develops into stupidity, submissiveness, and a mechanical, routine existence. As soon as he leaves school, he ceases to learn or to have any motive for doing so. No one around him thinks of acquiring information except in his own pursuit (*Fach*). He is content to pursue with a sort of military precision the track of his profession and its adherent information. He is the creature of forms, and walks leisurely by rule. If the true form of civilization be political struggle, commercial enterprise, fortunes rapidly made and lost, ships, colonies, manufactures, European interests, then is the German Bauer, who is happy with his pipe, the society of his friends, the gossip of the town, and his few acres of land, not far advanced in civilization; but with this social difference the elementary school has little to do. It is a product, not a cause of civilization. The children learn to read, write, and cipher, as a matter of course, just as they learn to talk, or to dress as neatly as they can afford. To be without the power of reading and writing would be to want one of the social comforts to which the whole population has been accustomed, and beyond this it does not calculate or aim.

3. TEACHERS AND THEIR QUALIFICATIONS.

From the foregoing account of public elementary instruction in the several States of Germany, it appears, that in each, the smallest, as well as the largest, in those with the most liberal as well as those with the most arbitrary administration, provision is made for the professional training and improvement of teachers. The institutions in which this training is given, are organized and conducted with special reference to the work to be done by the teachers in the schools, the pupils are composed of candidates for teaching as a profession, and efforts are made to test their natural aptitude for the work before they enter the institutions, and by frequent examinations to get rid of those on whom this professional training will be lost, and at the same time, to ascertain the class and department of instruction in which each will excel. After leaving the institutions the appointment to a position is strictly guarded, and every precaution is taken to protect the incumbents of office against the danger of a monotonous occupation and to surround them with aids to self and professional improvement through life. Books and periodicals, frequent conferences and associations by which the young and obscure teacher is made partaker in all the improvements of the most experienced and eminent members of the profession, living or dead, in his own and other countries, are provided in every State. Exemption from military service in time of peace, legal recognition as members of the civil service, permanent employment, a residence with a garden, or its equivalent, pecuniary allowance when sick, and provision for years of infirmity and old age, and for their families in case of death, give to the profession of teaching in Germany a respect which does not attach to it in any other country. To illustrate these points more in detail than could be done in our account of the system of any one State, we present in the following Table the number and location of the Teachers Seminaries in the different German States, together with the legal provision made in the most advanced State, for the education, improvement and support of teachers, with the results of this policy, as set forth by disinterested and competent observers from other countries.

We think a disastrous blow has been struck at the profession of elementary teaching by limiting the attainments and aspirations of its members to the standard fixed by Prussia in the regulations of the Ministry of Public Instruction October 1, 1854, which have been generally adopted in other German States.

This whole subject of the professional training of teachers, for higher as well as elementary schools, for the infant as well as the reform school, will be treated in detail in "*Normal Schools, or Institutions, Classes and Agencies for the professional Training of Teachers for schools of different grades and kinds,*" which will be issued in 1872.

PROFESSIONAL SCHOOLS FOR TEACHING.

ELEMENTARY TEACHERS' SEMINARIES.

Location.	Date when established.	Religious denomination.*	Sex of pupils.	Professors.	Pupils.	Graduates, 1898.
ANHALT:						
Bernburg		P.	M.	6	27	
Cöthen		P.	M.	7	45	
Total		2		13	72	
AUSTRIA, (German Provinces:)						
Budweis	1848	C.	M.	9	109	
Bünn	1832	C.	M.			
Eger		C.	M.			
Görs		C.	M.	13	30	
Graz		C.	M.			
Innsbruck		C.	M.			
Korneuburg		C.	M.			
Klagenfurt		C.	M.			
Königsrätz		C.	M.			
Laibach		C.	M.			
Leitmeritz		C.	M.	10	29	
Linz		C.	M.	9		
Marburg		C.	M.			
Olmütz		C.	M.			
Pilsen		C.	M.			
Prague		C.	M.		16	
Do		C.	M.			
Do		C.	M.	13	70	
Do		C.	F.	7	39	
Do		C.	M.			
Do		C.	F.			
Salzburg	1812	C.	M.		23	
St. Pölten	1864	C.	M.		32	
Teichen	1777	C.	M.		50	
Trient		C.	M.			
Trieste		C.	M.			
Troppau		C.	M.			
Vienna	1775	C.	M.			
Total		29				
AUSTRIA: Galicia, 8 seminaries					239	
Bukowina, 3 seminaries					49	
Dalmatia, 1 seminary					14	
Hungary, 27 seminaries					843	
Croatia and Slavonia, 3 seminaries					71	
Transylvania, 2 seminaries					29	
Total (in 112 seminaries)						
BADEN:						
Ettlingen	1788	C.	M.	4	71	29
Carlsruhe	1824	P.	M.	8	61	
Meersburg	1839	C.	M.		58	
Total		3			190	

* The letter P denotes the Protestant sect; C, Catholic; J, Jewish; S, Simultaneous.

† Besides the foregoing, there are a number of smaller seminaries, which, added to those here given, make a total of 68 seminaries in German Austria.

ELEMENTARY TEACHERS' SEMINARIES—Continued.

Location.	Date when established.	Religious denomination.	Sex of pupils.	Professors.	Pupils.	Graduates, 1869.
BAVARIA:						
Altendorf	1824	P.	M.	8	103	53
Bamberg	1806	C.	M.	.....	.....	.....
Eichstätt	1834	C.	M.	.....	.....	.....
Freising	1812	C.	M.	9	78	33
Kaiserslautern	1818	P.	M.	8	101	43
Landshut	1823	C.	M.	.....	.....	.....
Schwabach	1843	P.	M.	9	93	51
Spaichingen	1839	C.	M.	5	56	28
Stranberg	1823	C.	M.	10	90	37
Würzburg	1771	C.	M.	11	108	51
Total		10				
BRUNSWICK:						
Brunswick		P.	M.	5	20	.....
Do	1868	P.	F.	3	9	.....
Wolfenbüttel	1751	P.	M.	6	44	.....
Total		3			73	
HANNOVER:						
Alfeld	1813	P.	M.	5	65	.....
Aurich	1852	P.	M.	5	26	.....
Hannover	1751	P.	M.	10	58	.....
Do	1856	P.	F.	9	28	8
Do	1848	J.	M.	11	17	15
Hildesheim	1838	C.	M.	4	12	.....
Lüneburg	1851	P.	M.	4	40	40
Neuenhaus	1851	P.	M.	2	15	.....
Osnabrück	1834	P.	M.	5	27	6
Do	1838	C.	M.	5	28	31
Stade	1852	P.	M.	11	60	.....
Total		11				
HESSE-CASSEL:						
Cassel		J.	M.	4	6	3
Fulda	1805	C.	M.	5	53	9
Homburg	1783	P.	M.	7	62	.....
Schlichtern	1805	P.	M.	6	70	22
Total		4			191	
HESSE-DARMSTADT:						
Bensheim	1804	C.	M.	7	37	10
Friedberg	1817	P.	M.	10	92	55
Total		2			129	
LIPPE-DETMOLD:						
Detmold	1789	P.	M.	9	19	5
Total		1			19	
LIPPE-SCHAUMBURG:						
Bückeburg	1783	P.	M.	4	9	.....
Total		1			9	
MECKLENBURG-SCHWERIN:						
Neukloster	1782	P.	M.	14	.....	.....
Total		1				

ELEMENTARY TEACHERS' SEMINARIES—Continued.

Location.	Date when estab- lished.	Religious denom- ination.	Sex of pupils.	Professors.	Pupils.	Graduates, 1890.
MECKLENBURG-STRELITZ:						
Milow	1890	P.	M.	3	19	.....
Total		1			19	.....
NASSAU:						
Montabaur		C.	M.	5	60	.....
Udingen	1851	P.	M.	6	66	20
Total		2			146	.....
OLDENBURG:						
Oldenburg	1808	P.	M.	7	79	23
Vechta	1860	C.	M.	3	29	.....
Total		2			208	.....
PRUSSIA, (including Holstein, Lauenburg, and Schleswig:)						
Aix-la-Chapelle		C.	F.			.....
Alt-Döbern	1819	P.	M.	5	69	38
Angerburg	1829	P.	M.	5	84	25
Berent	1866	C.	M.	5	60	.....
Berlin	1831	P.	M.	9	60	.....
Do	1832	P.	M.	8	36	.....
Do	1859	P.	M.			.....
Do	1811	P.	F.	10	46	.....
Do		P.	F.	10	22	.....
Do		P.	F.			.....
Do	1859	J.	M.	11	30	11
Bartin		P.	M.			.....
Barby	1823	P.	M.	6	79	27
Breslau	1765	C.	M.	8	89	30
Do	1863	C.	F.			.....
Brannsborg	1811	C.	M.	2	53	.....
Bromburg	1820	P.	F.	6	45	15
Do	1843	P.	F.			.....
Do	1866	P.	M.			.....
Boppard	1868	C.	M.	4	24	.....
Brühl	1823	C.	M.	7	100	.....
Bunsen	1816	P.	M.	7	76	27
Büren	1825	C.	M.	7	75	25
Bütow	1859	P.	M.	7	51	26
Canmin	1838	P.	M.	5	44	25
Coblenz		C.	F.			.....
Cologne		C.	M.		30	.....
Cöpenick	1748	P.	M.	6	100	31
Cölin	1816	P.	M.	5	59	29
Cresburg	1858	P.	M.	6	46	11
Dramburg	1867	P.	M.	3	25	.....
Drossen	1864	P.	M.	6	80	30
Drossig	1852	P.	F.	13		32
Hüsseldorf		F.	F.			.....
Düsselthal		F.	M.		28	.....
Eckernförde, (in Schleswig)	1857	P.	M.	8	59	17
Elblieben	1826	P.	M.	6	46	.....
Elberfeld	1845	P.	F.		6	.....
Do		P.	F.			2
Elsterwerda	1857	P.	M.	5	60	29
Erfurt	1820	P.	M.	8	70	21
Exin	1865	C.	M.	6	37	12
Eylau	1774	P.	M.	6	85	27
Frankfurt-on-the-Oder		P.	F.			.....
Frankenburg	1791	P.	M.	6	62	.....
Friedland	1864	P.	M.	5	76	25

ELEMENTARY TEACHERS' SEMINARIES—Continued.

Location.	Date when estab- lished.	Religious denom- ination.	Sex of pupils.	Professors.	Pupils.	Graduates, 1882.
PRUSSIA—Continued.						
Friedrichshoff	1866	P. P.	M. M.	3	30	9
Ginget	1867	P. P.	M. M.	2	10	.....
Görlitz	1851	P. P.	F. F.	.....	.....	.....
Do .....	.....	P. P.	F. F.	.....	.....	4
Grandenz	1816	O. O.	M. M.	5	67	19
Gr. andenz	1849	P. P.	F. F.	9	30	9
Halberstadt	1778	P. P.	M. M.	5	66	.....
Heiligenstadt	1836	P. P.	M. M.	5	36	.....
Hilchenbach	1806	P. P.	M. M.	6	72	.....
Isterburg	1854	P. P.	F. F.	.....	.....	.....
Käuserwerth .....	.....	P. P.	F. F.	9	60	.....
Karlene	1811	P. P.	M. M.	6	87	.....
Kempen	1840	C. C.	M. M.	5	100	50
Do .....	.....	C. C.	M. M.	.....	.....	.....
Kozmin	1865	P. P.	M. M.	6	98	16
Kyritz	1866	P. P.	M. M.	6	71	25
Königsberg	1701	P. P.	M. M.	10	78	.....
Do	1853	P. P.	F. F.	4	61	17
Do .....	.....	P. P.	F. F.	.....	12	.....
Landsberg	1854	P. P.	F. F.	.....	.....	.....
Langenhorst	1830	C. C.	M. M.	5	40	.....
Lebbin .....	.....	P. P.	M. M.	.....	.....	.....
Liebethal	1863	C. C.	M. M.	5	76	23
Lieguitz .....	.....	P. P.	F. F.	.....	.....	.....
Marienburg	1813	P. P.	M. M.	5	78	.....
Do	1823	P. P.	F. F.	.....	.....	.....
M. mel	1836	P. P.	F. F.	.....	.....	.....
Münster	1832	C. C.	F. F.	6	30	14
Münsterberg	1847	P. P.	M. M.	6	80	25
Münsterfeld .....	.....	C. C.	F. F.	.....	.....	.....
Mörs	1820	P. P.	M. M.	4	50	25
Neuwied	1819	P. P.	M. M.	5	72	.....
Neuzelle	1817	P. P.	M. M.	6	95	31
Ober-Glogau	1802	C. C.	M. M.	7	86	28
Oranienburg	1861	P. P.	M. M.	7	90	32
Osterburg	1821	P. P.	M. M.	5	62	20
Paderborn	1832	C. C.	F. F.	3	22	22
Paradies	1836	C. C.	M. M.	6	49	18
Perleberg .....	.....	P. P.	F. F.	5	13	1
Petershagen	1831	P. P.	M. M.	6	60	.....
Pilchowitz	1867	C. C.	M. M.	4	46	.....
Plathe .....	.....	P. P.	M. M.	.....	.....	.....
Pöhlitz	1811	P. P.	M. M.	7	75	25
Posen	1840	S. S.	F. F.	12	43	15
Do	1844	C. C.	M. M.	7	52	14
Potadam	1860	P. P.	F. F.	.....	.....	.....
Prelakrotzsch	1849	C. C.	M. M.	6	75	32
Pyriz	1827	P. P.	M. M.	5	20	.....
Quitzburg, (in Lauenburg) .....	.....	P. P.	M. M.	2	18	.....
Reichenbach	1858	P. P.	M. M.	6	71	25
Segeberg, (in Holstein)	1781	P. P.	M. M.	7	79	26
Soest	1806	P. P.	M. M.	6	72	.....
Stettin .....	.....	P. P.	F. F.	5	17	.....
Steinan	1849	P. P.	M. M.	9	82	27
Thorn	1820	P. P.	F. F.	.....	.....	.....
Tondern, (in Schleswig)	1787	P. P.	M. M.	11	90	42
Traben .....	.....	P. P.	M. M.	.....	.....	.....
Do .....	.....	C. C.	M. M.	.....	.....	.....
Trarback .....	.....	P. P.	M. M.	3	.....	18
Traves .....	.....	C. C.	M. M.	.....	.....	.....
Weissenfels	1784	P. P.	M. M.	9	75	20
Wesel	1852	P. P.	F. F.	.....	.....	.....
Total .....	.....	*104	.....	.....	.....	.....

* 73 male and 32 female seminaries.

ELEMENTARY TEACHERS' SEMINARIES—Continued.

Location.	Date when estab- lished.	Religious denom- ination.	Sex of pupils.	Professors.	Pupils.	Graduates, 1899.
RUSS-GREITZ:						
Greitz	1793	P.	M.	6	35	19
Total		1			35	
RUSS-SCHLEIZ:						
Schleiz	1820	P.	M.	7	51	7
Total		1			51	
SAXE-ALTENBURG:						
Altenburg		P.	M.			
Total		1				
SAXE-COBURG-GOTHA:						
Coburg		P.	M.			
Gotha	1780	P.	M.	9	58	14
Gotha		P.	F.	6	30	
Total		3				
SAXE-MEININGEN:						
Hildburghausen	1795	P.	M.	11	58	16
Total		1			58	
SAXE-WEIMAR:						
Eisenach	1783	P.	M.	9	65	7
Weimar	1726	P.	M.		89	
Total		2			154	
SAXONY:						
Annaberg	1842	P.	M.	11	156	23
Borna	1863	P.	M.			
Bautzen	1817	P.	M.	12	126	18
Do	1851	C.	M.			
Callenberg	1856	P.	F.	10	65	19
Dresden, (Royal Seminary)	1785	P.	M.	9	134	
Dresden, (Fletcher Seminary)	1825	P.	M.	8	118	16
Grimma		P.	M.	10	116	19
Do	1855	P.	M.	4	30	10
Nossen	1856	P.	M.	7	126	20
Plauen		P.	M.	10	156	
Waldenburg		P.	M.	8	83	
Total		12				
SCHWARZBURG-RUDOLSTADT:						
Rudolstadt	1747	P.	M.	12		
Frankenhausen		P.	M.	6		
Total		2				
SCHWARZBURG-SONDERHOUSEN:						
Sondershausen	1844	P.	M.	7	16	9
Total		1			16	
WURTEMBERG:						
Esslingen	1811	P.	M.	8	75	
Gmünd	1824	C.	M.	7	94	
Nürtingen	1843	P.	M.	8	77	
Total		3			246	

LEGAL PROVISION

RESPECTING THE

EDUCATION, IMPROVEMENT, AND SUPPORT OF TEACHERS IN PRUSSIA.

THE following are the provisions of the law of 1819 respecting Normal Schools and teachers. It is difficult to describe the well-qualified teacher in more appropriate language :

"In order that a master may be enabled to fulfill the duties of his station, he ought to be religious, wise, and alive to the high importance of his profession. He ought thoroughly to understand the duties of his station, to have acquired the art of teaching and managing youth, to be firm in his fidelity to the state, conscientious in the discharge of his duties, friendly and prudent in his relations with the parents of his children, and with his fellow-citizens in general ; finally, he ought to inspire all around him with a lively interest in the progress of the school, and to render them favorably inclined to second his own wishes and endeavors."

In order to insure the education of such schoolmasters, the following regulations are laid down :

"Each department is required to have a number of young men well prepared for their duties, who may supply the yearly vacancies in the ranks of the schoolmasters of the department, and therefore each department shall be required to support a Normal School. These establishments shall be formed on the basis of the following regulations :

1. No Normal School for teachers in the primary schools shall admit more than seventy pupil teachers.

2. In every department where the numbers of Catholics and Protestants are about equal, there shall be, as often as circumstances will permit, a Normal School for the members of each sect. But where there is a very marked inequality in the numbers of the two sects, the masters of the least numerous sect shall be obtained from the Normal Schools belonging to that sect in a neighboring department, or by smaller establishments in the same department annexed to an elementary primary school. Normal Schools for simultaneous education of two sects shall be permitted when the pupil teachers can obtain close at hand suitable religious instruction, each in the doctrines of his own church.

3. The Normal Schools shall be established whenever it is possible in small towns, so as to preserve the pupil teachers from the dissipation, temptations, and habits of life which are not suitable to their future profession, without subjecting them to a monastic seclusion ; but the town ought not to be too small, in order that they may profit by the vicinity of several elementary and superior primary schools.

6. No young man can be received into a Normal School who has not passed through a course of instruction in an elementary primary school ; nor can any young man be received, of the excellence of whose moral character there is the least ground of suspicion. The age of admission into the Normal Schools shall be from sixteen to eighteen years.

7. As to the methods of instruction, directors of the Normal Schools shall rather seek to conduct the pupil teachers by their own experience to simple and clear principles, than to give them theories for their guidance ; and with this end in view, primary schools shall be joined to all the

Normal Schools, where the pupil teachers may be practised in the art of teaching.

8. In each Normal School *the course of instruction shall last three years*, of which the first shall be devoted to the continuation of the course of instruction which the pupils commenced in the primary schools; the second to an instruction of a still higher character, and the third to practice in the primary school attached to the establishment. For those who are sufficiently advanced when they enter not to require the first year's instruction, the course may be reduced to one of two years.

10. In each Normal School particular funds, set apart for that purpose, shall be devoted to the support of young men of good character not able to pay for themselves, *but in such a manner as not to habituate them to too many comforts, and not to render them unfit for the worst paid situations in the primary schools.*

11. Every pupil who receives such assistance from a Normal School, is obliged at the end of his educational course to accept the place which the provincial consistories assign him; a prospect of advancement, however, must always be held out to him in case of perseverance and good conduct.

12. The provincial consistories have the immediate surveillance of all the Normal Schools in the different departments of their respective provinces; and the provincial ecclesiastical authorities have the especial surveillance of the religious instruction of their respective sects."

The following provisions, gathered from the law of 1819, and from the general regulations, have an important bearing on the social and pecuniary condition of the teacher.

No young man is allowed to conduct a primary school until he has obtained a certificate of his capacity to fulfill the important duties of a schoolmaster. The examinations of the candidates for these certificates is conducted by commissions, composed of two laymen and two clergymen, or two priests. The provincial consistories nominate the lay members, the ecclesiastical authorities of the respective provinces nominate the clerical members for the examination of the religious education of the Protestant candidates; and the Roman Catholic bishop nominates the two priests who examine the Roman Catholic candidates.

The members of these commissions are nominated for three years, and they can afterward be continued in their office if advisable.

The lay examiners and the clerical examiners join in granting the certificates, but the religious and secular examinations are conducted separately. The certificates are signed also by the director of the Normal School in which the young man has been educated, and describe his moral character and his intellectual capability.

These certificates are not valid until they have been ratified by the superior authorities, that is, by the provincial consistories; and in the case of the certificates granted to the Roman Catholics, the further ratification of the bishop is necessary. If the provincial consistories and the bishops can not agree about the granting of any certificate, the matter is referred to the minister of public instruction, who decides between them. The provincial authorities can re-examine the candidates, if they think there is any reason to doubt what is specified on the certificate granted by the committee of examination, and can declare them incapable, and can require the local authorities to proceed to another examination if they are not satisfied with the character of any of the candidates.

The young women who are candidates for the situations of school-mistresses are obliged to submit to the same kind of examination before they can obtain the certificate enabling them to take the charge of a girls' school.

The election and nomination of masters for the communal schools, is the duty of the local committees, on the presentation of the communal inspectors.

The masters can not be installed and begin to receive their salaries, until their certificates have been ratified by the provincial authorities.

"The provincial consistories are required to choose able and zealous clerical inspectors, and to engage them to form and direct great associations between the masters of the town and rural schools, for the purpose of fostering among them a feeling of interest in their profession, of furthering the further development of their education by regular reunions, by consultations, conversations, practical treatises, study of particular branches of instruction, and discussions on treatises read aloud in their public assemblies."

These teachers' conferences are very useful. They not only promote a spirit of generous emulation among the schoolmasters, and so stimulate them to further exertions, but they encourage the masters, by reminding them that they form part of a great and honorable body. And nothing encourages man more than a feeling of association. Man alone is weak and timid; but let him only feel that his feelings and aims are those of a number who regard him as their fellow, and he then is a giant in his aims and efforts.

The provincial consistories have the power of sending the master of a primary school, who appears to be in need of further instruction, to a Normal School, for the time that may appear requisite to give him the necessary additional instruction; during his absence his place is supplied by a young man from the Normal School, who receives a temporary certificate.

The expenses of the conferences and of the masters who frequent for a second time the Normal Schools, are generally defrayed by the provincial educational authorities.

The schoolmasters are encouraged to continue their own education by hopes of preferment to better situations, or to superior schools; but before they can attain this preferment, they must pass a second examination, conducted by the same authorities who conducted the former.

If a schoolmaster is negligent or conducts himself improperly in his station, the inspector of the school first remonstrates with him, and if this fails to convince him, the inspector of the canton reproves him; and if he still prove refractory, they report him to the provincial authorities, who have the power of fining him, or of removing him from the school.

If he commits any flagrant crime, he is reported at once to the provincial authorities, who remove him immediately, after having carefully verified the accusations brought against him by the inspectors.

Every school in a village or town must have a garden suitable to the nature of the country and habits of the people, for a kitchen-garden, nursery-orchard, or the raising of bees. This is provided as an additional resource for the teacher, as well as an available means of instruction of the scholars.

Every school-house must not only embrace what we regard as essential features in such structures, such as size, location, ventilation, warmth, seats and desks, &c., but apparatus for illustrating every study, and "a sufficient collection of books for the use of the master," as well as a residence for him.

Whenever a new fund, legacy, or donation, accrues to the schools of a province or commune, the same must be appropriated to the improvement of the school, or of the master's income, and not to the diminution of any tax or rate before collected.

The practice of "boarding round," or the right of the teacher to a place at the table of every family in the commune or district in rotation

(called in German, *Wandeltisch*, movable table,) formerly prevailed in Prussia, but it was first arrested by an ordinance in 1811, directing that this "movable table" should not be reckoned in payment of the teacher's compensation, and should be given up at the option of the teacher. It is now abandoned in every commune which makes any pretension to civilization. It never included any thing beyond an "itinerating table." The teacher always had a fixed residence provided, and usually under the same roof with his school.

Scholars are encouraged to form among themselves a fund, by voluntary contributions, for the assistance of their necessitous schoolfellows. The fund is managed by themselves under the direction of their teacher. This is done to cultivate good feeling in the school, and save the teacher from a constant tax for articles for such pupils.

All school fees, all contributions or assessments in money, fuel &c., must be collected by the regular school authorities, and not by the teacher. And no service can be required of the teacher in or about the school, and he can engage in no employment, which will lower his dignity, or weaken his influence.

All public teachers are regarded as public functionaries, and are exempt from liability to military service in time of peace, and from all local and capitation taxes, or if taxed, an equivalent is allowed in an increase of salary.

Whenever any division of land belonging to a parish, or town, is made, a sufficient quantity shall be allotted to the schoolmaster for a vegetable garden, and for the feed of a cow. Wherever the right of common exists, the teacher shall share in its benefits.

Schoolmasters who become temporarily infirm, are entitled to an allowance from the school moneys provided for the support of their schools. And when permanently disabled, are entitled to an annual allowance from the income of funds provided in each province for this purpose, and for the support of the widows and children of teachers, who entitle themselves to such provision for their families, by a small annual contribution from their salaries.

Teachers, who show themselves entitled to promotion to the direction of Normal Schools, are enabled to travel both in Prussia, and other countries, for the purpose of extending their knowledge of the organization, instruction and discipline of schools.

A valuable ordinance passed in 1826, and renewed in 1846, requires the director of a seminary to travel about, once a year, and visit a certain part of the schools within his circuit. He makes himself acquainted with the state of the school, listens to the instruction given, takes part himself in the same, and gives to the teacher such hints for improvement as his observation may suggest. The results of his yearly visits he presents, in the form of a report, to the school authorities of the province. This occasional visitation is very useful in clearing up the dark corners of the land, correcting abuses, and giving an impulse, from time to time, to teachers, who might otherwise sink into apathy and neglect. To render the efficacy of the seminaries more complete, it is provided that at the end of three years after leaving the seminary, the young teachers shall return to pass a second examination.

By an ordinance in 1826, it is provided: "To the end, that the beneficial influence of the seminary may extend itself to those teachers already established, who either require further instruction, or who in their own cultivation and skill in office do not advance, perhaps even recede; it is required that such teachers be recalled into the seminary for a shorter or longer time, as may be needful for them, in order, either to pass through a whole methodical course, or to practice themselves in particular departments of instruction."

RESULTS OF NORMAL SCHOOL SYSTEM.

Alexander Dallas Bache, LL. D., Superintendent of the United States Coast Survey, in a "Report on Education in Europe," to the Trustees of the Girard College of Orphans, Philadelphia, in 1838, remarks as follows:

"When education is to be rapidly advanced, Seminaries for Teachers offer the means of securing this result. An eminent teacher is selected as Director of the Seminary; and by the aid of competent assistants, and while benefiting the community by the instruction given in the schools attached to the Seminary, trains, yearly, from thirty to forty youths in the enlightened practice of his methods; these, in their turn, become teachers of schools, which they are fit at once to conduct, without the failures and mistakes usual with novices; for though beginners in name, they have acquired, in the course of the two or three years spent at the Seminary, an experience equivalent to many years of unguided efforts. This result has been fully realized in the success of the attempts to spread the methods of Pestalozzi and others through Prussia. The plan has been adopted, and is yielding its appropriate fruits in Holland, Switzerland, France, and Saxony; while in Austria, where the method of preparing teachers by their attendance on the primary schools is still adhered to, the schools are stationary, and behind those of Northern and Middle Germany.

These Seminaries produce a strong *esprit de corps* among teachers, which tends powerfully to interest them in their profession, to attach them to it, to elevate it in their eyes, and to stimulate them to improve constantly upon the attainments with which they may have commenced its exercise. By their aid a standard of examination in the theory and practice of instruction is furnished, which may be fairly exacted of candidates who have chosen a different way to obtain access to the profession."

Hon. Horace Mann, in his "Seventh Annual Report as Secretary of the Board of Education in Massachusetts," in which he gives an account of an educational tour through the principal countries of Europe in the summer of 1843, says:

"Among the nations of Europe, Prussia has long enjoyed the most distinguished reputation for the excellence of its schools. In reviews, in speeches, in tracts, and even in graver works devoted to the cause of education, its schools have been exhibited as models for the imitation of the rest of Christendom. For many years, scarce a suspicion was breathed that the general plan of education in that kingdom was not sound in theory and most beneficial in practice. Recently, however, grave charges have been preferred against it by high authority. The popular traveler, Laing, has devoted several chapters of his large work on Prussia to the disparagement of its school system. An octavo volume, entitled 'The Age of Great Cities,' has recently appeared in England, in which that system is strongly condemned; and during the pendency of the famous 'Factories' Bill before the British House of Commons, in 1843, numerous tracts were issued from the English press, not merely calling in question, but strongly denouncing, the whole plan of education in Prussia, as being not only designed to produce, but as actually producing, a spirit of blind acquiescence to arbitrary power, in things spiritual as well as temporal—as being, in fine, a system of education adapted to enslave, and not to enfranchise, the human mind. And even in some parts of the United States—the very nature and essence of whose institutions consist in the idea that the people are wise enough to distinguish between what is right and what is wrong—even here, some have been illiberal enough to condemn, in advance, every thing that savors of the Prussian system, because that system is sustained by arbitrary power.

* * * * *

But allowing all these charges against the Prussian system to be true, there were still two reasons why I was not deterred from examining it.

In the first place, the evils imputed to it were easily and naturally separable

from the good which it was not denied to possess. If the Prussian schoolmaster has better methods of teaching—reading, writing, grammar, geography, arithmetic, &c., so that, in half the time, he produces greater and better results, surely we may copy his modes of teaching these elements without adopting his notions of passive obedience to government, or of blind adherence to the articles of a church. By the ordinance of nature, the human faculties are substantially the same all over the world, and hence the best means for their development and growth in one place, must be substantially the best for their development and growth everywhere. The spirit which shall control the action of these faculties when matured, which shall train them to self-reliance or to abject submission, which shall lead them to refer all questions to the standard of reason or to that of authority,—this spirit is wholly distinct and distinguishable from the manner in which the faculties themselves ought to be trained; and we may avail ourselves of all improved methods in the earlier processes, without being contaminated by the abuses which may be made to follow them. The best style of teaching arithmetic or spelling has no necessary or natural connection with the doctrine of hereditary right; and an accomplished lesson in geography or grammar commits the human intellect to no particular dogma in religion.

In the second place, if Prussia can pervert the benign influences of education to the support of arbitrary power, we surely can employ them for the support and perpetuation of republican institutions. A national spirit of liberty can be cultivated more easily than a national spirit of bondage; and if it may be made one of the great prerogatives of education to perform the unnatural and unholy work of making slaves, then surely it must be one of the noblest instrumentalities for rearing a nation of freemen. If a moral power over the understandings and affections of the people may be turned to evil, may it not also be employed for the highest good?

Besides, a generous and impartial mind does not ask whence a thing comes, but what it is. Those who, at the present day, would reject an improvement because of the place of its origin, belong to the same school of bigotry with those who inquired if any good could come out of Nazareth; and what infinite blessings would the world have lost had that party been punished by success! Throughout my whole tour, no one principle has been more frequently exemplified than this,—that wherever I have found the best institutions,—educational, reformatory, charitable, penal, or otherwise,—there I have always found the greatest desire to know how similar institutions were administered among ourselves; and where I have found the worst, there I have found most of the spirit of self-complacency, and even an offensive disinclination to hear of better methods.

* * * * *

All the subjects I have enumerated were taught in all the schools I visited, whether in city or country, for the rich or for the poor. In the lowest school in the smallest and obscurest village, or for the poorest class in overcrowded cities; in the schools connected with pauper establishments, with houses of correction, or with prisons,—in all these, there was a teacher of *mature age*, of simple, unaffected, and decorous manners, benevolent in his expression, kind and genial in his intercourse with the young, and of such attainments and resources as qualified him not only to lay down the abstract principles of the above range of studies, but, by familiar illustration and apposite example, to commend them to the attention of the children.

I speak of the teachers whom I saw, and with whom I had more or less of personal intercourse; and, after some opportunity for the observation of public assemblies or bodies of men, I do not hesitate to say, that if those teachers were brought together, in one body, I believe they would form as dignified, intelligent, benevolent-looking a company of men as could be collected from the same amount of population in any country. They were alike free from arrogant pretension and from the affectation of humility. It has been often remarked, both in England and in this country, that the nature of a school-teacher's occupation exposes him, in some degree, to overbearing manners, and to dogmatism in the statement of his opinions. Accustomed to the exercise of supreme authority, moving among those who are so much his inferiors in point of attainment, perhaps it is proof of a very well-balanced mind, if he keeps himself free from assumption

in opinion and haughtiness of demeanor. Especially are such faults or vices apt to spring up in weak or ill-furnished minds. A teacher who cannot rule by love, must do so by fear. A teacher who cannot supply material for the activity of his pupils' minds by his talent, must put down that activity by force. A teacher who cannot answer all the questions and solve all the doubts of a scholar as they arise, must assume an awful and mysterious air, and must expound in oracles, which themselves need more explanation than the original difficulty. When a teacher knows much, and is master of his whole subject, he can afford to be modest and unpretending. But when the head is the only text-book, and the teacher has not been previously prepared, he must, of course, have a small library. Among all the Prussian and Saxon teachers whom I saw, there were not half a dozen instances to remind one of those unpleasant characteristics,—what Lord Bacon would call the '*idol of the tribe*,' or profession,—which sometimes degrade the name and disparage the sacred calling of a teacher. Generally speaking, there seemed to be a strong love for the employment, always a devotion to duty, and a profound conviction of the importance and sacredness of the office they filled. The only striking instance of disingenuousness or attempt at deception, which I saw, was that of a teacher who looked over the manuscript books of a large class of his scholars, selected the best, and, bringing it to me, said, 'In seeing one you see all.'

Whence came this beneficent order of men, scattered over the whole country, molding the character of its people, and carrying them forward in a career of civilization more rapidly than any other people in the world are now advancing? This is a question which can be answered only by giving an account of the Seminaries for Teachers.

From the year 1820 to 1830 or 1835, it was customary, in all accounts of Prussian education, to mention the number of these Seminaries for Teachers. This item of information has now become unimportant, as there are seminaries sufficient to supply the wants of the whole country. The stated term of residence at these seminaries is three years. Lately, and in a few places, a class of preliminary institutions has sprung up,—institutions where pupils are received in order to determine whether they are fit to become candidates to be candidates. As a pupil of the seminary is liable to be set aside for incompetency, even after a three years' course of study; so the pupils of these preliminary institutions, after having gone through with a shorter course, are liable to be set aside for incompetency to become competent.

Let us look for a moment at the guards and securities which, in that country, environ this sacred calling. In the first place, the teacher's profession holds such a high rank in public estimation, that none who have failed in other employments or departments of business, are encouraged to look upon school-keeping as an ultimate resource. Those, too, who, from any cause, despair of success in other departments of business or walks of life, have very slender prospects in looking forward to this. These considerations exclude at once all that inferior order of men who, in some countries, constitute the main body of the teachers. Then come,—though only in some parts of Prussia,—these preliminary schools, where those who wish eventually to become teachers, go, in order to have their natural qualities and adaptation for school-keeping tested; for it must be borne in mind that a man may have the most unexceptionable character, may be capable of mastering all the branches of study, may even be able to make most brilliant recitations from day to day; and yet, from some coldness or repulsiveness of manner, from harshness of voice, from some natural defect in his person or in one of his senses, he may be adjudged an unsuitable model or archetype for children to be conformed to, or to grow by; and hence he may be dismissed at the end of his probationary term of six months. At one of these preparatory schools, which I visited, the list of subjects at the examination,—a part of which I saw,—was divided into two classes, as follows:—1. Readiness in thinking, German language, including orthography and composition, history, description of the earth, knowledge of nature, thorough base, calligraphy, drawing. 2. Religion, knowledge of the Bible, knowledge of nature, mental arithmetic, singing, violin-playing, and readiness or facility in speaking. The examination in all the branches of the first class was conducted in writing. To test a pupil's readiness in thinking, for instance, several topics for composition are given out, and, after the lapse of a cer-

tain number of minutes, whatever has been written must be handed in to the examiners. So questions in arithmetic are given, and the time occupied by the pupils in solving them, is a test of their quickness of thought, or power of commanding their own resources. This facility, or faculty, is considered of great importance in a teacher.* In the second class of subjects the pupils were examined orally. Two entire days were occupied in examining a class of thirty pupils, and only twenty-one were admitted to the seminary school;—that is, only about two-thirds were considered to be eligible to become eligible, as teachers, after three years' further study. Thus, in this first process, the chaff is winnowed out, and not a few of the lighter grains of the wheat.

It is to be understood that those who enter the seminary directly, and without this preliminary trial, have already studied, under able masters in the Common Schools, at least all the branches I have above described. The first two of the three years, they expend mainly in reviewing and expanding their elementary knowledge. The German language is studied in its relations to rhetoric and logic, and as æsthetic literature; arithmetic is carried out into algebra and mixed mathematics; geography into commerce and manufactures, and into a knowledge of the various botanical and zoological productions of the different quarters of the globe; linear drawing into perspective and machine drawing, and the drawing from models of all kinds, and from objects in nature, &c. The theory and practice, not only of vocal, but of instrumental music, occupy much time. Every pupil must play on the violin; most of them play on the organ, and some on other instruments. I recollect seeing a Normal class engaged in learning the principles of Harmony. The teacher first explained the principles on which they were to proceed. He then wrote a bar of music upon the black-board, and called upon a pupil to write such notes for another part or accompaniment, as would make *harmony* with the first. So he would write a bar with certain intervals, and then require a pupil to write another, with such intervals as, according to the principles of musical science, would correspond with the first. A thorough course of reading on the subject of education is undertaken, as well as a more general course. Bible history is almost committed to memory. Connected with all the seminaries for teachers are large Model or Experimental Schools. During the last part of the course much of the students' time is spent in these schools. At first they go in and look on in silence, while an accomplished teacher is instructing a class. Then they themselves commence teaching under the eye of such a teacher. At last they teach a class alone, being responsible for its proficiency, and for its condition as to order, &c., at the end of a week or other period. During the whole course, there are lectures, discussions, compositions, &c., on the theory and practice of teaching. The essential qualifications of a candidate for the office, his attainments, and the spirit of devotion and of religious fidelity in which he should enter upon his work; the modes of teaching the different branches; the motive-powers to be applied to the minds of children; dissertations upon the different natural dispositions of children, and, consequently, the different ways of addressing them, of securing their confidence and affection, and of winning them to a love of learning and a sense of duty; and especially the sacredness of the teacher's profession,—the idea that he stands, for the time being, in the place of a parent, and therefore that a parent's responsibilities rest upon him, that the most precious hopes of society are committed to his charge, and that on him depends, to a great extent, the temporal and perhaps the future well-being of hundreds of his fellow-creatures,—these are the conversations, the ideas, the feelings, amid which the candidate for teaching spends his probationary years. This is the daily atmosphere he breathes. These are the sacred, elevating, invigorating influences constantly pouring in upon his soul. Hence, at the expiration of his course, he leaves the seminary to enter upon his profession, glowing with enthusiasm for the noble cause he has espoused, and strong in his resolves to perform its manifold and momentous duties.

Here, then, is the cause of the worth and standing of the teachers, whom I had the pleasure and the honor to see. As a body of men, their character is

* The above described is a very common method of examining in the gymnasia and higher seminaries of Prussia. Certain sealed subjects for an exercise are given to the students; they are then locked up in a room, each by himself, and at the expiration of a given time, they are enlarged, and it is seen what each one has been able to make out of his faculties.

more enviable than that of either of the three, so-called, 'professions. They have more benevolence and self-sacrifice than the legal or medical, while they have less of sanctimoniousness and austerity, less of indisposition to enter into all the innocent amusements and joyous feelings of childhood, than the clerical. They are not unmindful of what belongs to men while they are serving God; nor of the duties they owe to this world while preparing for another.

On reviewing a period of six weeks, the greater part of which I spent in visiting schools in the north and middle of Prussia and in Saxony (excepting, of course, the time occupied in going from place to place), entering the schools to hear the first recitation in the morning, and remaining till the last was completed at night, I call to mind three things about which I cannot be mistaken. In some of my opinions and inferences I may have erred, but of the following facts there can be no doubt:

1. During all this time, I never saw a teacher hearing a lesson of any kind (excepting a reading or spelling lesson), *with a book in his hand*

2. I never saw a teacher *sitting* while hearing a recitation.

3. Though I saw hundreds of schools, and thousands,—I think I may say, within bounds, tens of thousands of pupils,—*I never saw one child undergoing punishment, or arraigned for misconduct. I never saw one child in tears from having been punished, or from fear of being punished.*

During the above period, I witnessed exercises in geography, ancient and modern; in the German language,—from the explanation of the simplest words up to belles-lettres disquisitions, with rules for speaking and writing;—in arithmetic, algebra, geometry, surveying, and trigonometry; in book-keeping; in civil history, ancient and modern; in natural philosophy; in botany and zoology; in mineralogy, where there were hundreds of specimens; in the endless variety of the exercises in thinking, knowledge of nature, of the world, and of society; in Bible history and in Bible knowledge;—and, as I before said, in no one of these cases did I see a teacher with a book in his hand. His book,—his books,—his library, was in his head. Promptly, without pause, without hesitation, from the rich resources of his own mind, he brought forth whatever the occasion demanded. I remember calling one morning at a country school in Saxony, where every thing about the premises, and the appearance, both of teacher and children, indicated very narrow pecuniary circumstances. As I entered, the teacher was just ready to commence a lesson or lecture on French history. He gave not only the events of a particular period in the history of France, but mentioned, as he proceeded, all the contemporary sovereigns of neighboring nations. The ordinary time for a lesson here, as elsewhere, was an hour. This was somewhat longer, for, toward the close, the teacher entered upon a train of thought from which it was difficult to break off, and rose to a strain of eloquence which it was delightful to hear. The scholars were all absorbed in attention. They had paper, pen, and ink before them, and took brief notes of what was said. When the lesson touched upon contemporary events in other nations,—which, as I suppose, had been the subject of previous lessons,—the pupils were questioned concerning them. A small text-book of history was used by the pupils, which they studied at home.

I ought to say further, that I generally visited schools without guide, or letter of introduction,—presenting myself at the door, and asking the favor of admission. Though I had a general order from the Minister of Public Instruction, commanding all schools, gymnasia, and universities in the kingdom to be opened for my inspection, yet I seldom exhibited it, or spoke of it,—at least not until I was about departing. I preferred to enter as a private individual, an uncommended visitor.

I have said that I saw no teacher *sitting* in his school. Aged or young, all stood. Nor did they stand apart and aloof in sullen dignity. They mingled with their pupils, passing rapidly from one side of the class to the other, animating, encouraging, sympathizing, breathing life into less active natures, assuring the timid, distributing encouragement and endearment to all. The looks of the Prussian teacher often have the expression and vivacity of an actor in a play. He gesticulates like an orator. His body assumes all the attitudes, and his face puts on all the variety of expression, which a public speaker would do if haranguing a large assembly on a topic vital to their interests.

It may seem singular, and perhaps to some almost ludicrous, that a teacher in expounding the first rudiments of handwriting, in teaching the difference between a hair-stroke and a ground-stroke, or how an *l* may be turned into a *b*, or a *w* into a *v*, should be able to work himself up into an oratorical fervor; should attitudinize, and gesticulate, and stride from one end of the class to the other, and appear in every way to be as intensely engaged as an advocate when arguing an important cause to a jury;—but, strange as it may seem, it is nevertheless true; and before five minutes of such a lesson had elapsed, I have seen the children wrought up to an excitement proportionally intense, hanging upon the teacher's lips, catching every word he says, and evincing great elation or depression of spirits, as they had or had not succeeded in following his instructions. So I have seen the same rhetorical vehemence on the part of the teacher, and the same interest and animation on the part of the pupils, during a lesson on the original sounds of the letters,—that is, the difference between the long and the short sound of a vowel, or the different ways of opening the mouth in sounding the consonants *b* and *p*. The seal of the teacher enkindles the scholars. He charges them with his own electricity to the point of explosion. Such a teacher has no idle, mischievous, whispering children around him, nor any occasion for the rod. He does not make desolation of all the active and playful impulses of childhood, and call it peace; nor, to secure stillness among his scholars, does he find it necessary to ride them with the nightmare of fear. I rarely saw a teacher put questions with his lips alone. He seems so much interested in his subject (though he might have been teaching the same lesson for the hundredth or five hundredth time), that his whole body is in motion;—eyes, arms, limbs, all contributing to the impression he desires to make; and, at the end of an hour, both he and his pupils come from the work all glowing with excitement.

Suppose a lawyer in one of our courts were to plead an important cause before a jury, but instead of standing and extemporizing, and showing by his gestures, and by the energy and ardor of his whole manner, that he felt an interest in his theme, instead of rising with his subject and coruscating with flashes of genius and wit, he should plant himself lazily down in a chair, read from some old book which scarcely a member of the panel could fully understand, and, after droning away for an hour, should leave them, without having distinctly impressed their minds with one fact, or led them to form one logical conclusion;—would it be any wonder if he left half of them joking with each other, or asleep;—would it be any wonder,—provided he were followed on the other side by an advocate of brilliant parts, of elegant diction and attractive manner,—who should pour sunshine into the darkest recesses of the case,—if he lost not only his own reputation, but the cause of his client also!

These incitements and endearments of the teacher, this personal ubiquity, as it were, among all the pupils in the class, prevailed much more, as the pupils were younger. Before the older classes, the teacher's manner became calm and didactic. The habit of attention being once formed, nothing was left for subsequent years or teachers, but the easy task of maintaining it. Was there ever such a comment as this on the practice of hiring cheap teachers because the school is young, or incompetent ones because it is backward!

In Prussia and in Saxony, as well as in Scotland, the power of commanding and retaining the attention of a class is held to be a *sine qua non* in a teacher's qualifications. If he has not talent, skill, vivacity, or resources of anecdote and wit, sufficient to arouse and retain the attention of his pupils during the accustomed period of recitation, he is deemed to have mistaken his calling, and receives a significant hint to change his vocation.

Take a group of little children to a toy-shop, and witness their outbursting eagerness and delight. They need no stimulus of badges or prizes to arrest or sustain their attention; they need no quickening of their faculties by rod or ferule. To the exclusion of food and sleep they will push their inquiries, until shape, color, quality, use, substance, both external and internal, of the objects around them, are exhausted; and each child will want the show-man wholly to himself. But in all the boundless variety and beauty of nature's works; in that profusion and prodigality of charms with which the Creator has adorned and enriched every part of his creation; in the delights of affection; in the ecstatic joys of benevolence; in the absorbing interest which an unsophisticated conscience

instinctively takes in all questions of right and wrong;—in all these, is there not as much to challenge and command the attention of a little child, as in the curiosities of a toy-shop? When as much of human art and ingenuity shall have been expended upon teaching as upon toys, there will be less difference between the cases.

The third circumstance I mentioned above was the beautiful relation of harmony and affection which subsisted between teacher and pupils. I cannot say that the extraordinary fact I have mentioned was not the result of chance or accident. Of the probability of that, others must judge. I can only say that, during all the time mentioned, I never saw a blow struck, I never heard a sharp rebuke given, I never saw a child in tears, nor arraigned at the teacher's bar for any alleged misconduct. On the contrary, the relation seemed to be one of duty first, and then affection, on the part of the teacher,—of affection first, and then duty, on the part of the scholar. The teacher's manner was better than parental, for it had a parent's tenderness and vigilance, without the foolish dotings or indulgences to which parental affection is prone. I heard no child ridiculed, sneered at, or scolded, for making a mistake. On the contrary, whenever a mistake was made, or there was a want of promptness in giving a reply, the expression of the teacher was that of grief and disappointment, as though there had been a failure, not merely to answer the question of a master, but to comply with the expectations of a friend. No child was disconcerted, disabled, or bereft of his senses, through fear. Nay, generally, at the ends of the answers, the teacher's practice is to encourage him with the exclamation, 'good,' 'right,' 'wholly right,' &c., or to check him, with his slowly and painfully articulated 'no'; and this is done with a tone of voice that marks every degree of *plus* and *minus* in the scale of approbation and regret. When a difficult question has been put to a young child, which tasks all his energies, the teacher approaches him with a mingled look of concern and encouragement; he stands before him, the light and shade of hope and fear alternately crossing his countenance; he lifts his arms and turns his body,—as a bowler who has given a wrong direction to his bowl will writhe his person to bring the ball back upon its track;—and finally, if the little wrestler with difficulty triumphs, the teacher felicitates him upon his success, perhaps seizes and shakes him by the hand, in token of congratulation; and, when the difficulty has been really formidable, and the effort triumphant, I have seen the teacher catch up the child in his arms and embrace him, as though he were not able to contain his joy. At another time, I have seen a teacher actually clap his hands with delight at a bright reply; and all this has been done so naturally and so unaffectedly as to excite no other feeling in the residue of the children than a desire, by the same means, to win the same caresses. What person worthy of being called by the name, or of sustaining the sacred relation of a parent, would not give any thing, bear any thing, sacrifice any thing, to have his children, during eight or ten years of the period of their childhood, surrounded by circumstances, and breathed upon by sweet and humanizing influences, like these?"

The Rev. Egerton Ryerson, D. D., Chief Superintendent of Schools, in a "*Report on a System of Public Elementary Instruction for Upper Canada*," after quoting the above passages from Mr. Mann's report, remarks:

"In the above summary and important statements on this subject, by the able Secretary of the Massachusetts Board of Education, I fully concur, with two slight exceptions. In one instance I did see a boy in tears (in Berlin) when removed to a lower class on account of negligence in his school preparations. I did see one or two old men sitting *occasionally* in school. With these exceptions, my own similar inquiries and experience of nearly three months in Southern and Western, as well as Northern and Middle Germany, and I might add a longer period of like investigations in Switzerland, Holland, Belgium and France—enable me not only to subscribe to the statements of the Hon. Mr. Mann, but would enable me, were it necessary, to illustrate them by various details of visits to individual schools."

Professor Lemuel Stephens, now of Girard College of Orphans, Philadelphia, in a "Letter addressed to Hon. F. R. Shunk, Superintendent of Common Schools in Pennsylvania," from Berlin, in 1843, remarks:

"To determine absolutely the influence which teachers' seminaries have had upon the state of popular education in Germany, would be a matter of great difficulty, owing to the gradual growth of these institutions. One thing is certain, that the improvement of the schools has followed, hand in hand, the multiplication and improvement of the seminaries. Perhaps the value of these institutions can be shown in no light so advantageously, as by comparing the class of common school teachers in Germany, at the present moment, with the same class in England and America. In this country one is struck with the zeal and common spirit which a common education has imparted to the whole body. They have been for three or four years under the instruction of men practically and scientifically acquainted with the best principles of teaching; and what is an indispensable part of their preparation, they have had the opportunity of testing the value, and of becoming familiar with the application of these principles in practice. During the latter part of their course they have been accustomed, under the eye of their teachers to instruct a school of children by which means the art and the theory have kept pace with each other. Some knowledge of the human mind, and some just conception of the great problem of education which they are engaged in solving, inspires them with self-respect, with earnestness and love of their profession. Once raised above the idea that education consists alone in drilling children in a few useful accomplishments, a sense of the dignity of the work of operating on, and forming other minds, causes them to overlook the humble outward conditions of a village school, and fortifies them against the seductions of false ambition.

Leaving out of the question the great immediate benefit of these seminaries in fitting teachers better to fill their office, I believe that the professional spirit, the *esprit du corps*, which they create, is productive of results which are alone sufficient to recommend these institutions. It is this common spirit which secures the progress of the young teacher after he has entered into active service, and saves him from the besetting sin of rusting into a mechanical routine, by keeping up a lively interchange of opinions, and making him acquainted with the successes and improvements of other teachers. The means for this intercourse, are conferences and periodicals of education. In every German city, in which I have made the inquiry, I have learned that the teachers from the different schools are accustomed to come together, at stated times for the purpose of mutual improvement: even in the villages of Hesse, and the mountainous part of Saxony, I found that the teachers, from villages miles apart, held their monthly conferences for debate and lecture.

In Germany there are no less than thirty periodicals devoted exclusively to education. In these all questions of interest to teachers are discussed; the best method of instructing explained, all new school books noticed and criticised: the arrangements and organizations of distinguished schools described, and accounts given from time to time of the progress of education in other states. The General School Gazette, which has particularly attracted my attention, has a list of more than one hundred regular contributors. The journals are open to all teachers to make known their experience, or to ask for information. The able director of the seminary in this city, who is at the same time the conductor of one of these periodicals, informs me that one or more of them finds its way to every common school teacher. They are furnished so low that he can generally afford to take them, or if not, they are taken by the district for his benefit. By these means an active spirit of inquiry is kept up; the improvements of individuals become the property of all; the obscure village teacher feels that he is a member of a large and respectable class, engaged in the great work of human improvement; and love and zeal for his profession are enkindled. There is union, sympathy, generous emulation and mutual improvement. Among the members of a profession, there is a common principle of life. It is a type of organic life, which contains within itself the principle of development and growth.

A valuable ordinance passed in Prussia, in 1826, and renewed in 1846, requires a director of a seminary to travel about once a year, and visit a certain part of the schools within his circuit. He makes himself acquainted with the

state of the school, listens to the instruction given, takes part himself in the same, and gives to the teacher such hints for improvement as his observation may suggest. The results of his yearly visits he presents in the form of a report to the school authorities of the province. This occasional visitation is very useful in clearing up the dark corners of the land, correcting abuses, and giving an impulse, from time to time, to teachers, who might otherwise sink into apathy and neglect. To render the efficacy of the seminaries more complete, it is provided that at the end of three years after leaving the seminary, the young teachers shall return to pass a second examination. And further, by an ordinance in 1826, it is provided, 'To the end, that the beneficial influence of the seminary may extend itself to those teachers already established, who either require further instruction, or who in their own cultivation and skill in office do not advance, perhaps even recede; it is required that such teachers be recalled into the seminary for a shorter or longer time, as may be needful for them, in order, either to pass through a whole methodical course, or to practice themselves in particular departments of instruction.' By this organization it is very easy to see that the whole system of popular instruction is brought under the influence of the most able teachers; their skill is made to tell upon the character of the class; and the assurance is given that the work of education is advancing surely and consequently toward perfection.

It is only by the distinct division of the objects of human industry and knowledge, into separate arts and sciences, that their advancement can be insured. The necessity for the division of labor in the mechanic arts is well enough understood. A necessity for this division, in intellectual pursuits, exists in a by no means less degree. So long as the science of education depends for its development upon the casual contributions of men of all professions, without being made the business of any, it must grope its way hither and thither by the light of occasional flashes, instead of being guided on by a steady flame.

The views of certain men on education are known among us, but so far as pedagogics from being cultivated as a science, we feel ourselves as yet hardly authorized to use the word. I am far from denying that we have many very good teachers; but they stand separate and alone. Their influence rarely extends beyond the sphere of their own schools. Their experience has furnished them with excellent practical rules for their own procedure, but these rules have perhaps never been expressed in words, much less their truth demonstrated by a reduction of the same to scientific principles. They are content to be known as possessing the mysterious talent of a skillful teacher, and their wisdom dies with them. It is owing to the isolated position in which teachers by profession find themselves, that the didactic skill they may have acquired, even when it rises above the character of a blind faculty, and is founded on the enlightened conclusions of science, still remains almost without influence on the wrong ideas in education which may be in vogue around them. To quote a remark of Dr. Harnisch: 'we have had, now and then, capable teachers without possessing seminaries: we still find such *singly* in states which yet have no seminaries, but it can not be denied that seminaries are most effectual levers for elevating the condition of common schools, and such they have sufficiently proved themselves to be in latter years.'

* * * * *

"How far may we avail ourselves of the German plan of popular education? It will be borne in mind, that the Prussian system is so far voluntary that it is left entirely to the parent where, and in what manner, his child shall be educated, only requiring that the years, from six till fourteen, shall be devoted to instruction, and that a certain amount of knowledge shall be obtained. The Swiss republics have placed their public schools on the same basis that the German states have done, their laws are essentially the same, and teachers have therefore, there as well as in Germany, the character of public servants. The great feature of the Prussian system, which it is both suitable and highly desirable for us to imitate, is that which I have already described, namely: the provision therein made for the education of common school teachers. This appears to me the only radical reform, and the only means of putting public education in a steady and consequent train of improvement.

To apply to ourselves the advantages which I have already stated as flowing from this measure—It will raise the employment of teaching among us to a regular profession, and introduce generally consistent and rational methods of

instructing. It will create among teachers, devotion to their office, and a desire for co-operation. This desire will manifest itself in the organization of unions for conference, and in the establishment and support of many periodicals. The higher character of teachers, and the improved state of the schools, will bring them respect, and a better remuneration for their services. The higher value set upon education, the immense contrast between the efficacy of a constant, and that of a half-yearly school, and I must add, the impossibility of getting good teachers for the latter, will gradually do away with this great evil under which our school system suffers. The permanent settlement of teachers, rendering much less the annual accession to the profession necessary to keep the schools supplied, will, as I have shown, obviate all difficulty on the score of numbers. The science of the human mind and its cultivation, this vitally important branch of a nation's literature, will be developed among us, and its blessings will be richly manifested in the better cultivation of all the sciences and arts of life.

Such is a scanty outline of the benefits which the experience of other countries, and reason, show us will follow the proper education of our teachers. I do not mean to say that Germany has already realized all these benefits. It is important to observe that the reform in education in this country, goes out from the government, not from the people themselves, who rather passively submit to its operation, than actively co-operate in giving it efficacy. This, with other grounds before stated, necessarily make popular education in Germany productive of less results than in our own country. * *

In the establishment of teachers' seminaries, their utility and success will depend entirely upon their appropriate and perfect organization. False economy has often attempted to provide for the education of primary teachers, by making the seminary an appendage to a high school, or an academy. Thirty years ago this arrangement was not uncommon in Germany; and later the experiment has been tried in the State of New York. * * If it were needed, to strengthen the evidence of the inefficiency of this system, I might easily quote the testimony of the most able teachers of Germany to this effect. Perhaps no department of education requires a more peculiar treatment, and more calls for the undivided zeal and energy of those who have the conduct of it, than the preparation of teachers.

Every thing depends on making the seminaries for teachers, separate and independent establishments, with a careful provision for a thorough, theoretical and practical preparation for all the duties of the common school. In the experiment of introducing teachers' seminaries into our country, there is a danger that we shall be too sparing in the number of teachers employed in conducting them. Seminaries conducted by one or two teachers can not be otherwise than imperfect; and while but little good would come from them, there is great danger that their failure would serve to bring the cause into disrepute."

That the art of teaching, as now practiced in the primary schools of Prussia, was but imperfectly understood by her schoolmasters only a quarter of a century ago, and that a knowledge of good methods was diffused throughout the kingdom only by the well directed efforts of the government, sustained by the self-denying and persevering labors of school officers and educators, in various directions, is evident from the following note appended to Prof. Stowe's address on Normal Schools and Teachers' Seminaries. The noble sentiment of Dinter, quoted by Prof. Stowe at the opening of his address, "I promised God, that I would look upon every Prussian peasant child as a being who could complain of me before God, if I did not provide for him the best education, as a man and a Christian, which it was possible for me to provide," shows the spirit with which some of the school officers of Prussia have acted. We append a brief notice of this excellent man, and model school officer, together with many excellent suggestions by other eminent teachers and officers from other sections of Germany.

PRUSSIAN SCHOOLS, A FEW YEARS AGO.

The following questions and answers are from Dr. Julius's testimony, before the Committee of the British House of Commons, in 1834, respecting the Prussian School System.

"Do you remember, from your own knowledge, what the character and attainments of the schoolmasters were previous to the year 1819?"

"I do not recollect; but I know they were very badly composed of non-commissioned officers, organists, and half-drunken people. It has not risen like a fountain at once. Since 1770, there has been much done in Prussia, and throughout Germany, for promoting a proper education of teachers, and by them of children."

"In your own observation has there been any very marked improvement in the character and attainments of schoolmasters, owing to the pains taken to which you have referred?"

"A very decided improvement."

Dinter, in his autobiography, gives some surprising specimens of gross incapacity in teachers, even subsequent to 1819. The following anecdotes are from that interesting work, *Dinters Leben von ihm selbst beschrieben*.

In the examination of a school in East Prussia, which was taught by a subaltern officer dismissed from the army, the teacher gave Dinter a specimen of his skill in the illustration of Scripture narrative. The passage was Luke vii, the miracle of raising the widow's son at Nain. "See, children (says the teacher), Nain was a great city, a beautiful city; but even in such a great, beautiful city, there lived people who must die. *They brought the dead youth out*. See, children, it was the same then as it is now—dead people couldn't go alone—they had to be carried. *He that was dead began to speak*. This was a sure sign that he was alive again, for if he had continued dead he couldn't have spoken a word."

In a letter to the King, a dismissed schoolmaster complained that the district was indebted to him 200705 dollars. Dinter supposed the man must be insane, and wrote to the physician of the place to inquire. The physician replied that the poor man was not insane, but only ignorant of the numeration table, writing 200705 instead of 275. Dinter subjoins, 'By the help of God, the King, and good men, very much has now been done to make things better.'

In examining candidates for the school-teacher's office, Dinter asked one where the Kingdom of Prussia was situated. He replied, that he believed it was somewhere in the southern part of India. He asked another the cause of the ignis-fatua, commonly called Jack-with-the-lantern. He said they were specters made by the devil. Another being asked why he wished to become a school-teacher, replied, that he must get a living somehow.

A military man of great influence once urged Dinter to recommend a disabled soldier, in whom he was interested, as a school-teacher. "I will do so," says Dinter, "if he sustains the requisite examination." "O," says the Colonel, "he doesn't know much about school-teaching, but he is a good, moral, steady man, and I hope you will recommend him to oblige me." *D.*—O yes, Colonel, to oblige you, if you in your turn will do me a favor. *Col.*—What is that? *D.*—Get me appointed drum-major in your regiment. True, I can neither beat a drum, nor play a fife; but I am a good, moral, steady man as ever lived.

A rich landholder once said to him, "Why do you wish the peasant children to be educated? it will only make them unruly and disobedient." Dinter replied, "If the masters are wise, and the laws good, the more intelligent the people, the better they will obey."

Dinter complained that the military system of Prussia was a great hinderance to the schools. A nobleman replied that the young men enjoyed the protection of the government, and were thereby bound to defend it by arms. Dinter asked if every stick of timber in a house ought first to be used in a fire-engine, because the house was protected by the engine? or whether it would be good policy to cut down all the trees of an orchard to build a fence with, to keep the hogs from eating the fruit?

SCHOOL-COUNSELOR DINTER.

GUSTAVUS FREDERICK DINTER was born at a village near Leipsic, in 1760. He first distinguished himself as principal of a Teachers' Seminary in Saxony, whence he was invited by the Prussian government to the station of School-Counselor for Eastern Prussia. He resides at Königsberg, and about ninety days in the year he spends in visiting the schools of his province, and is incessantly employed nearly thirteen hours a day for the rest of his time, in the active duties of his office; and that he may devote himself the more exclusively to his work, he lives unmarried. He complains that his laborious occupation prevents his writing as much as he wishes for the public, yet, in addition to his official duties, he lectures several times a week, during term-time, in the University at Königsberg, and always has in his house a number of indigent boys, whose education he superintends, and, though poor himself, gives them board and clothing. He has made it a rule to spend every Wednesday afternoon, and, if possible, one whole day in the week besides, in writing for the press; and thus, by making the best use of every moment of time, though he was nearly forty years old before his career as an author commenced, he has contrived to publish more than sixty original works, some of them extending to several volumes, and all of them popular. Of one book, a school catechism, fifty thousand copies were sold previous to 1830; and of his large work, the School-Teacher's Bible, in 9 volumes 8vo, thirty thousand copies were sold in less than ten years.

He is often interrupted by persons who are attracted by his fame, or desire his advice; and while conversing with his visitors, that no time may be lost, he employs himself in knitting; and thus not only supplies himself with stockings and mittens, suited to that cold climate, but always has some to give away to indigent students and other poor people. His disinterestedness is quite equal to his activity, and of the income of his publications, he devotes annually nearly five hundred dollars to benevolent purposes. Unweariedly industrious, and rigidly economical as he is, he lays up nothing for himself. He says, "I am one of those happy ones, who, when the question is put to them, 'Lack ye any thing?' (Luke xxii. 35), can answer with joy, 'Lord, nothing.' To have more than one can use is superfluity; and I do not see how this can make any one happy. People often laugh at me, because I will not incur the expense of drinking wine, and because I do not wear richer clothing, and live in a more costly style. Laugh away, good people; the poor boys, also, whose education I pay for, and for whom, besides, I can spare a few dollars for Christmas gifts, and new-year's presents, they have their laugh too."

Toward the close of his autobiography, he says respecting the King of Prussia, "I live happily under Frederick William; he has just given me one hundred

and thirty thousand dollars to build churches with in destitute places; he has established a new Teachers Seminary for my poor Polanders, and he has so fulfilled my every wish for the good of posterity, that I can myself hope to live to see the time when there shall be no schoolmaster in Prussia more poorly paid than a common laborer. He has never hesitated, during the whole term of my office, to grant me any reasonable request for the helping forward of the school-system. God bless him! I am with all my heart a Prussian. And now, my friends, when ye hear that old Dinter is dead, say, 'May he rest in peace; he was a laborious, good-hearted, religious man; he was a Christian.'"

A few such men in the United States would effect a wonderful change in the general tone of our educational efforts.

EXAMINATIONS FOR THE OFFICE OF TEACHER

IN Prussia, the Government not only provides every facility for the professional education of all the teachers of her public schools, but prohibits any person from teaching as master or assistant, in any public school, who does not hold a certificate of fitness obtained by passing the examinations instituted by itself. These examinations are two. The first is for the position as assistant, and the second as principal.

I. The *first* examination takes place when the candidate has completed his seminary course, and is called *Entlassungsprüfung*. It is conducted by the director and teachers of the seminary, each in his own branch, and superintended by the school committee of the province, assisted by the councilor of the department.

The certificates are of three grades, or degrees of merit: No. 1. "Very well qualified." No. 2. "Well qualified." No. 3. "Sufficiently qualified." As this classification is of great consequence to the future prospects of the candidates, the greatest care is taken to fix exactly the amount of performance which shall entitle the candidates to each of the grades respectively.

The subjects of examination are: 1. Religion. 2. German language. 3. Art of School-keeping. 4. Knowledge of our Country. 5. Arithmetic and Geometry. 6. Natural Knowledge. 7. Writing. 8. Drawing. 9. Singing and Theory of Music. 10. Organs.

The performance of the candidates under each of these heads is valued as "very good," "good," "sufficient;" and upon the aggregate of these separate valuations the grade of his certificates depends. No candidate can obtain a certificate No. 1, who has not obtained a "very good" in at least the three subjects, religion, German language, and arithmetic. Possessing the certificate of a first examination, the candidate can accept any appointment as assistant; and any time within three years, he is at liberty to throw up his place and quit the profession, by refunding the whole cost of his training in the seminary.

II. The *second* examination takes place at the end of the third, and before the expiration of five years from the time of passing the first examination. The assistant teacher must not wait to receive notice, but at the time and place appointed, with his first certificate in hand, must pre-

sent himself to the board of examiners, of which the departmental councillor is president. The examination turns wholly upon professional skill, and such subjects as the candidate was marked defective in, in his former examination. It is more a review of conduct than a test of attainment. So far as it is oral, it is dialogic; and each examiner follows out his own topic.

The examinations are both oral and written, and are not public, although the superintendent and any of the clergy of the department have a right to be present, and strangers may be introduced by the president.

III. Besides these two official examinations, which are obligatory, the trustees, or school board of particular schools or localities are authorized to institute further examinations, or to select from a number of candidates applying for a situation.

PROFESSIONAL IMPROVEMENT OF TEACHERS.

After the teacher has pursued his seminary course, and passed his first and second examinations, he must improve such opportunities as are provided for extending his practical knowledge.

I. There are a series of periodical meetings, systematically arranged and constituted, which the public teacher must attend:

1. *Parochial Conference*—for all the elementary teachers of a parish, held once a month in the winter season, and presided over by the pastor of the parish.

2. *District Conference*—for the teachers of several neighboring parishes, combined into districts, held every two months in the summer season—under the presidency of a pastor nominated by the superintendent.

3. *Circle Conference*—for all the teachers of a circle, held twice a year, by the superintendent.

4. *Departmental Conference*—held once a year, under the presidency of the *schulrath* of the department.

5. *The Seminary Conference*—held annually for all the teachers, who live within six miles of a seminary, under the presidency of the director. Besides the other purposes of the conference, this meeting is intended to keep alive the connection between the schools and the seminary. And the same object is sought, by assigning to the director the duty of inspecting a certain number of schools in the department every year.

II. There are *Book Societies* or Unions, to which subscriptions are compulsory, and on the list of yearly purchases are placed at least a certain number of professional periodicals and treatises.

III. *Repetition Courses* are established in connection with several of the Normal Schools, for teachers who wish to return to develop and strengthen their training.

The Normal Schools of Prussia, in their general aims, and special studies and methods, were very materially modified by the "*Regulativ*" of the Minister of Public Instruction, issued in October, 1854, the substance of which we give below, in a very compressed form, from Rev. M. Pattison's Report in 1860.

PRUSSIAN "REGULATIV" OF OCT. 1, 1854.

1. SCHOOL MANAGEMENT.—No systematic *pädagogik*, not even in a popular form, is to be taught in the seminary, but in its place shall be taught art of school management, for not more than two hours per week. This course may contain, in the first year, a simple picture of the Christian school in its first origin, and in its relation to family, church and state; the most important names among the schoolmen since the Reformation may be pointed out, and their influence in forming the elementary school exhibited.

In the second year, the objects and the arrangement of the elementary school may be explained; the proper principles of Christian instruction and discipline expounded.

In the third year, the pupils may be taught their duties as hereafter servants of the state and church,—the means of improving themselves after they leave the seminary,—but the greater part of their time this year will be taken up with preparing for the lessons in the practicing school, and in endeavoring to gain a clear hold of the experiences they make in the same. The separate instruction of each teacher in the seminary is the only introduction which can be given to a good method, where this separate instruction is based on the principle of teaching in the seminary the same matter and in the same form as is required in the elementary school itself. Method, therefore, will no longer be taught as a separate branch, and as a part of "school management," (*schulkunde*,) will be only so far introduced that the connection between the various parts of elementary teaching may be explained, and the relation in which each part stands to the objects of the school and to the education it is designed to give.

Under the head Education nothing more is necessary to be taught to the elementary teacher than to bring together and explain the texts in Holy Scripture which touch on the subject; the doctrine of sin, of man's need of a Saviour, of the law of Divine Redemption and Sanctification, is a *pädagogik* which requires little elucidation from the sciences of human nature.

Under the head School Education the principles of discipline and teaching should be more minutely gone into, but these lessons should be given in strict connection with the experience obtained by the scholar in the practicing school.

2. RELIGION.—The religious instruction hitherto given in many seminaries, under the title of "Christian Doctrine," is henceforth to be termed in the lesson table "Catechism." Its object is to provide a direction and a firm footing for the individual religious confession of the pupil, through a clear and profound understanding of God's Word, upon the basis of the evangelical doctrines, teaching them through this understanding to know themselves, and their relation to the divine scheme for Salvation, and so laying the only true foundation for their whole Christian life.

As this instruction is not one which the teacher has himself to reproduce in the course of his teaching in the elementary school, it is therefore not subject to the same limitations in all respects as the other portions of the seminary course, which do occur again in the elementary school. Immediately, however, the religious instruction received in the seminary ought to exert a powerful influence on the whole mental life of the teacher; and it is therefore of great importance that sure and abiding results of a Christian confession, conformable with the dogmatic conceptions of the church, should be attempted. The basis of this instruction must be of course the symbolical books of the Evangelical church, *i. e.*, the smaller catechism of Luther, or the Heidelberg catechism.

The exposition necessary for the understanding this catechism will no longer be left to the individual seminary teacher; a manual must be employed for the purpose, which shall contain all that is necessary for a schoolmaster to know. By the advice of the Evangelical church council, we hereby order that the

"Barmen Catechism" be exclusively used in the *Kvangelical* seminaries, and that the teacher be restricted to seeing that the pupils understand the same, and make it their own, without himself adding anything further to its substance.

It is further requisite that the schoolmaster cherish a warm and lively sympathy with the church life of the present. To this end some knowledge of the past is requisite, but no regular chronological course of church history can be given in the seminary. It shall suffice that the pupils learn the most important facts and names in the method of biographical groups, especial reference being had to the Apostolical period, to the Reformation, the present period, and the extension of the church by missionary enterprise, that the future schoolmaster may be thus qualified for a free and disinterested action in the fields both of the foreign and inner mission, the succor of the poor and the forsaken, and other charitable objects. This is an object which can not be attained so much by lessons as by lending appropriate books, or reading passages out of them, by introducing the pupils to practical participation in the various mission enterprises. It would be desirable that the seminaries, as such, should be enrolled as members of the mission unions.

The next point to be attended to in the religious instruction in the seminary is, to bring this instruction, much more than hitherto, into immediate relation to the religious instruction to be given in the elementary school. To this purpose there is required a clear understanding of the duty of the elementary school in respect of the religious instruction it is called upon to give.

First, it must be firmly established that systematic treatment of Christian doctrine, whether in the way of explanation of catechism, or independent expounding of dogmas or Scripture texts, is not the province of the elementary teacher, but of the clergyman. The catechism lesson in the school is only a lesson preparatory to the confirmation preparation to be given by the pastor, and must be restricted to bringing the catechism in its verbal and material meaning before the understanding, and inculcating it in the memory of the children.

Secondly, Scripture History must be treated as the field in which the elementary school has to solve the problem of founding and extending the Christian life of the youth committed to its charge. It must be pre-supposed that this instruction aims neither at moral applications nor at abstract dogmatic inferences, but at leading the children to the sure apprehension and the inward and faithful appropriation of the facts of God's treatment of His chosen people and of the whole human race, and thence to deduce for them the eternal ideas of the most important divine and human things. In this view, the whole course of the Biblical history must be gone through with the seminarist, who shall thus be brought to an immediate and intuitional knowledge of the fundamental ideas and truths, by living in and through each step and each personal relation of the religious life under the leading of God's Word.

The future schoolmaster shall be required to be able to repeat, without book, each Scripture history in the form in which it is taught in the school. He shall be further led to handle each of these histories in detail, and with due reference to the general objects of Scripture teaching, in strict connection with the order of the church's year, so that he may know how to establish a connection of his school with the liturgical life, and make the children conscious participators in the same. From this time forth an indispensable condition of admission into the seminary will be an exact acquaintance with these histories as contained in such manuals of those of Zahn, Preuss, or Otto Schultz, and the ability to recite them by heart.

Here follow specific directions for reading the Bible and the gospels and epistles for the year; for learning texts and hymns. The section concludes thus:—

Religious instruction, conducted according to these principles, will form teachers clearly aware of what they have to do, possessing within themselves a sufficient knowledge of the word, doctrine, and life of the *Evangelic* church; it will open to them the entrance upon a God-fearing life, in which they may find practical experience of the course by which God leads us from sin to just-

fication by faith, which worketh by love. To this end, the whole life in the seminary must be brought under the discipline of the Word and the Spirit; teachers and pupils alike must draw from the fountain of grace, and the community must exhibit a pattern of common Christian life.

3. LANGUAGE.—The future teacher is sufficiently qualified to instruct in language and reading in the elementary school, when he knows how to handle rightly the spelling and reading book. The seminaries hitherto have too much neglected to teach a simple method of learning to read. Consequently, years have been spent in acquiring, perhaps very imperfectly, what might be attained in months, viz., the mechanical power of reading. To qualify the schoolmaster in this branch, neither theoretical instruction nor yet practice in the model school will alone suffice; but it will be necessary to take the seminarist in the lowest class through a course of practical lessons in all the details of teaching to read, which practice must be continued till the right method has been thoroughly mastered by each pupil.

Again, in the use of the reading book, it is not enough to instruct the seminarist generally in the mode of interpreting; each portion and passage of the reading book, authoritatively introduced into the schools of the province, must be gone through in the way in which it has to be by them afterwards treated in the elementary school.

In connection with the reading book the pupils must be introduced to German grammar, keeping in view always, that this is a subject which they will not have to teach again in the school.

This is the reading course for the third class. In the two upper classes the object of this branch of instruction is, starting from the knowledge acquired in the lower class, to introduce the pupil to so much of the contents of the language as is necessary for the level of culture, proper for an elementary teacher, and for life among the people. To acquire a good and correct intonation the best method is, to penetrate the sense of what is read. The ability to read difficult passages well forms a tolerably correct measure for judging the amount of formal education possessed by the seminarist. Wackernagel's reading book may be taken, and a selection of pieces in prose and verse made from it, ascending from the easy to the more difficult, and as to their substance bearing on the arrangement of the other parts of the pupils' course. These passages must be worked over till they are thoroughly understood, and have become the learner's own property. Teacher and pupil have here the fittest opportunity to apply the art of concentration of teaching. Within the limits of these passages must be acquired the power of understanding and using his own language so far as it is requisite for the elementary master, without any theoretical lessons of etymology, prosody, lexicology, &c. The remaining contents of the reading book may be afterwards read in a more cursory way, without, however, neglecting to understand what is read, or to practice the reproduction of that which has been read.

The written exercises for the lower and middle class must be set in connection with the reading lesson; but in the upper class they may consist in independent reproduction of single parts out of other parts of the course, or in consideration of questions which concern the profession of teacher. Here also the pupil should learn the written forms of office and business which he may have afterwards occasion for.

The students of each year must have a course of private reading pointed out to them, of which they shall be called on from time to time to give an account to the teacher. In the choice of books for this purpose, regard must be had, not merely to the student's own culture, but to the influence which he may hereafter exercise, beyond the limits of the school, upon the character and morals of the people. Accordingly, the so-called classical literature (of Germany) must be prohibited from forming any part of this private course, and nothing must be admitted into it but what has a tendency to promote church life.

Here follows a list of permissible books.

4. HISTORY AND GEOGRAPHY.—Both these branches shall start from a common point; that of our own country. General history is useless in the seminary, and the instruction shall be confined to German history, with especial

regard to that of Prussia and the history of the province. It must be considered one of the first duties of the school teacher to inculcate in the rising generation a knowledge of the patriotic traditions and characters of the past and present, along with respect and love to the reigning family. This patriotic species of history should be brought into connection with the life of the people, and their mode of thinking, for which purpose the days of patriotic commemoration are to be put prominently forward, and employed as points of departure. The student should learn the best specimens of popular poetry; both the words and tune; thus making their instruction, both in language and music, serviceable to that of patriotic history. The custom already adopted in some seminaries, of having special celebrations of memorial days for events in our national or ecclesiastical year, which are not already adopted into the church year, is hereby recommended for general imitation. The following days might be so distinguished: * 18th January, 18th February, 18th and 25th June, 3d August, 15th, 18th, 31st October, and 10th November, leaving other days for particular provincial commemorations to be added. The commemoration may fitly consist in the execution of appropriate music; on the church days chaunting; adding explanations of the respective events commemorated.

As the instruction in history is confined to the two upper classes, so the instruction in geography shall be confined to the two lower classes.

Then follows the programme of the geographical course.

5. KNOWLEDGE OF NATURE.—Natural history shall be taught in the first and second years' classes two hours per week; not in a strictly scientific way, or adopting any classification. The principal indigenous plants and animals shall be brought before the pupils and described to them. In botany a foundation for further future study shall be laid. They shall be taught to distinguish the principal native minerals and rocks. A popular description of the human body shall be given. It is scarcely necessary to say that a necessary condition of this instruction is a religious disposition and tendency. The pupils ought to acquire a love for nature and natural occupations. A practical direction, too, may be given to this branch of instruction by constant reference to gardening, agriculture, industry and trade. In the third year the students may advance to natural philosophy, which shall always be treated in an experimental way, without mathematical formulæ; the common instruments, machines, and mechanical powers may be explained to them, with the phenomena of heat, electricity and magnetism.

6. ARITHMETIC AND GEOMETRY.—The latter is limited to acquaintance with the principal geometrical figures, plane and solid, their properties and modes of measuring them, without any scientific method or calculus. Arithmetical operations, with three places of figures, are to be practiced as in the elementary school, as follows: In ciphering, the practical end of the people's school vanishes, on the one hand, all the lessons in the theory of number which were formerly given, and, on the other, avoids with equal care the working of problems by the mechanical methods of multiplication table. Mental arithmetic, not permitted as a separate exercise, as a useless fatigue of brain, is used to correct the mechanism of the slate, and is restricted to the system of enumeration as distinct from that of notation. Setting sums to work in abstract number is to be done as little as possible; in the lower class altogether avoided. The examples should be always in concrete number. This latter rule is deduced from the principle of concentration of teaching, which is further carried through in the requirements, that the four operations shall not be taught as separate processes, each governed by its separate rule, but in their mutual connection; nor fractions be made a distinct branch. The true division which is to separate the lower from the upper class in arithmetic, is the magnitude of the quantities dealt with. Thus a child is carried through all the operations, fractional and unitarian, in the tens before it advances to the hundreds, and so on. Geometry, a favorite subject with the old masters, is not now admitted into the one-class school,

* It may be necessary to state the events for which these days are famous: 18th January, 1701, Prussia become a kingdom; 18th February, 1546, Luther died; 18th June, 1815, Battle of Belle Alliance; 3d August, 1770, Frederick William III. born; 15th October, 1795, King's Birthday; 18th October, 1813, Battle of Leipzig; 31st October, 1517, Reformation; 10th November, 1483, Luther born.

though we find it sometimes taught in the upper classes of a six-class school in connection with designing.

For leave to go into the higher parts of arithmetic, proportion, decimals, extraction of roots, not for application in the school, but for their own improvement, application may be made to the provincial government.

7. WRITING is to be taught with an especial view to acquiring a plain and flowing hand, and, secondly, to learning how to set clear copies of single letters and strokes in proper succession for the school. The copies executed by the pupils are to be at once exercises in caligraphy and an intellectual discipline. The method of teaching to write is to be learnt along with the practice in writing.

8. DRAWING in the Seminary must not go beyond introductory lessons in the linear representation of simple objects.

9. MUSIC is cultivated in the seminary for moral and church objects. The art is never to be regarded as its own end. The field of instruction here is one of deep and earnest moral purpose; in great measure a sacred purpose. The seminary has to form, not only the teacher of singing for the school, but the organist and the precursor for the church.

10. GYMNASIUM. 11. GARDENING.—Instruction in gardening, cultivation of fruit-trees, silk, &c., shall be given, or some part of it, in every seminary; but local opportunities will determine their character.

The above is the substance, very greatly compressed, of a document even more than usually involved in vague and abstract language. It relates only to the three years' course in the seminary, and one of its main objects is to restrict the variety and ambitiousness of the previous system. How far even the limited course here prescribed can be carried out, depends necessarily on how far the young men, at their admission to the seminary, are qualified to commence the course here described. As I have already said, the greater part of them come so raw and uncultivated, that they require the greater part of the first year to make them fit to begin their training. On every side in Prussia are heard complaints of the want of preparation on the part of the *präparanden*, as they are called, before their entry at the seminary. Yet these youths have all had the advantages of the elementary school, generally a six-class school, up to fourteen, and have since that time been professing to prepare themselves specially for entrance at the seminary. As they can not enter the seminary till eighteen, (in Prussia,) and as the seminary professes to make very little addition to the matters taught in the elementary school, but mainly to practice and fix what has been there learnt, it must excite our wonder, what have these youths been doing in the interval between leaving school and applying for admission at the seminary, that they come so ill prepared?

The principle which appears to govern that reform of the North German seminaries, which has been accomplished in the last eight years, or is still in progress, may be best described by its contrast to that which it has supplanted. The aim of the seminaries in the last generation was less to train the future schoolmaster for the technical work of teaching children of from eight to fourteen to read, write and cipher, than to give him a complete mental culture. The old seminary was a university on a small scale, and confined to a particular faculty its science of *pädagogik*. It had some of the excellencies, and many of the defects, of the German university; it had its elevated, universal, super-professional aim, and breadth of culture; it had also its defects of method; its frittering of the matters taught into so many abstract branches, erected into sciences, and theoretically lectured upon, not taught. The old seminary teacher was a professor, who gave his courses of logic, *Pädagogik*, *Didaktik*, *Methodik*, anthropology or psychology. The seminarists were students who sat listening to these lofty harangues, and writing out their *Heften* from them. A few among them caught from him a love of knowledge, and an

undefined ambition for intellectual self-development; meanwhile, the great mass of them comprehended little of all they heard, and went away in ignorance of the rudiments, while the technical qualifications for their future vocation were neglected by all. A master so turned out into life was not only not qualified, he was positively unfitted, for his duties. He found himself, with an unsatisfied intellectual craving, condemned to an inferior social position, to a starving salary, without prospect of promotion, and bound to a labor which he despised. Even if he liked teaching, his wish was to teach as he had been taught, and he began to lecture his children on natural science, on astronomy, on history or theology, or on the beauties of Schiller, according to his taste. His dissatisfaction with his own lot in life begot a political discontent. Though he dared not utter this, he felt it keenly. The agitations of 1848-9 were a "schoolmasters' revolution." It is not necessary to inquire here if this be true or not; it is sufficient that such a belief is generally entertained, at least among the governments, and the classes connected with them. The reaction against the old system was rapid in proportion to the imminence of the danger. This reaction was partly one of purely educational theory, partly one of political alarm. A sounder educational opinion proscribed at once the aim and the method hitherto pursued. The proper aim of the seminary was perceived to be, not to educate its pupils as men, but to train them as schoolmasters. The forming and development of the understanding were here entirely out of place. The whole scientific furniture of the old seminary was turned out of doors. *Pädagogik*, name and thing, were banished, and at most, the practical management of a school (*Schulkunde*) was retained as a subject of lessons for one hour per week. Physics, the favorite branch of the old teachers, were to cease as science, and their place taken by *Heimathskunde*, or observation of the phenomena of our own neighborhood. The vague and aimless "history," upon which so much time had been hitherto wasted, was supplanted by the more manageable "history of our fatherland," i. e., of Prussia in Prussian seminaries, of Saxony in the Saxon, &c. The "so-called classical literature" of Germany was absolutely prohibited, even for private reading, and in its place a select library, chiefly compilations of modern writers, was ordered for the seminary. Finally, learning by rote was to take the place of the formal exercise of the understanding; and instead of knowledge, the object proposed to the student was the acquisition of the technical facilities which the children were to learn from him.

These were the educational principles of the reform; of the political principles involved it is not necessary that I should speak. It is as much in the interest of the schoolmasters themselves as in that of the existing social order, that they should have learnt to know their own place in it. The spirit of independence, self-reliance and intellectual ambition which the old seminary fostered, made them not only dangerous to church and state, but unhappy in their confined sphere of life. The young teachers whom the seminaries are now turning out, as far as I have had opportunities of observing them, are of a very different temper. The official reports from all the departments concur in stating, in the words of that of Merseberg, (March, 1858), that "the former eagerness for emancipation on the part of the teachers had disappeared." The older teachers, if they retain the feeling, find it necessary to conceal it. A spirit of subordination, of contentment with their lot, and acquiescence in church authority, is now prevalent. His energy has perhaps gone with it, but at any rate his restlessness has disappeared.

This result has not been attained exclusively by repressive measures. Within the last few years great efforts have been made to improve the salaries of the teachers.

II. SECONDARY INSTRUCTION.

Secondary Instruction in Germany is not a continuation of the instruction of the elementary schools, but exists independent of it, and forms part of the system of superior instruction. By degrees the Burgher School, the highest grade of the primary system, is being merged into the *Real-schulen*, or *Real gymnasia*, the lowest grade of the secondary system, and thus prepares pupils for the special schools of agriculture, building, engineering, and other departments of practical life. But as yet, preparation for the universities can only be made in the Gymnasium.

Admission.—The pupils are not admitted into a gymnasium, or other establishment for secondary education, under ten years of age; and the following qualifications are required:—(1) Facility in reading, correct spelling, and the rudiments of grammar; (2) Writing from dictation; (3) Readiness in the four fundamental rules of arithmetic, and acquaintance with the properties of numbers and simpler parts of fractions; (4) Elements of geography (Europe in particular); (5) Narrative parts of the Old Testament, and the life of Christ; (6) Elementary notions of form (drawing).

Studies.—The subjects of instruction in the gymnasium:—(1) Singing and music; (2) Gymnastics; (3) Calligraphy and drawing; (4) Religion and Biblical history; (5) Arithmetic; (6) Mathematics—applied mechanics, and statics in the higher classes; (7) Geography, ancient and modern; (8) German language, historical grammar; (9) German literature, ancient and modern; (10) Rhetoric; (11) Latin (Tacitus and Cicero in the higher classes); (12) Greek (Xenophon, Plato, &c., in the higher classes); (13) French or English (in some gymnasia, both optional, in some English is voluntary; obligatory in others); (14) Hebrew (optional, except for future theological students); (15) Natural History; (16) History, ancient and modern; (17) Philosophy—logic, anthropology, psychology.

Terms and Examination.—The scholastic year is divided into two terms, at the close of each of which there is an examination. At the end of the second half, the examinations for passing them from one class to another are held under supervision of a government inspector. The six classes should, in the ordinary way, be passed through in nine years. Thus a pupil entering at ten would leave the gymnasium and enter the university at nineteen.

Final, or Leaving Examination.—Before proceeding from the gymnasium to the university, an examination must be undergone, called *Abiturienten*, or *Examination of Maturity*. Those who have received their education in a private school must pass the same examination before being admitted to the university, and to professional life. In their case, this examination is, in some States, to be undergone before inspectors of the Supreme Council; in Prussia, in any gymnasium they may select. The candidates are to be examined separately, and are required to produce the certificates of their masters as to moral conduct and proficiency.

The conduct of this examination is in the hands of the Committee of the Gymnasium, consisting of the head master, the teachers of the higher classes, one of two members of the clergy or authorities of the place, and in Prussia a member of the Provincial Consistory, in Baden the Mayor, elected by universal suffrage. In Prussia, the member of the Provincial Consistory presides, but his appointment must be approved by the Ministry of Public Instruction. The clerical delegate must be approved by the Consistory of the Province. Besides the above, members of the Supreme Council of Education have the practical direction of the examination. In Prussia, there is moreover a Royal Commission, appointed by the Ministry, and consisting of professors of universities or secondary schools, who attend the examination as inspectors. The teachers of the gymnasium and the local authorities of the school are also present at the oral examination, which, in certain States, takes place in public.

The examination is both oral and by writing, and comprises the following

subjects:—German, Latin, Greek, French or English, Hebrew (obligatory for future students of theology only), Religion, General History, Geography, Mathematics, Physics, Natural History, and the elements of Mental Philosophy. The following is an abstract of the regulations in Prussia for the final examination:

Written Examination.—The subjects of the written examination are selected by the Commissary of the Government, who is present, from a list furnished by the director and head-master of the gymnasium. *They must be such as have not been specially treated in the class-room*, though not beyond the range of instruction of the pupils. The written exercises embrace the following:—(1) A German prose composition; (2) A Latin composition, and so-called *extempore* exercise, in which the master speaks or reads in German to the pupil, who must write down the same in Latin; (3) Translation from a Greek author, *which has not been read in the school course*, as well as from Latin into Greek; (4) Translation from German into a modern language; (5) The solution of two questions in Geometry, and of two in analysis, within the limits of the course in those subjects. Candidates may also, if they please, be examined beyond the requirements for passing. Those who intend to apply themselves to theology or philology have to translate a portion of one of the historical books of the Old Testament, or a Psalm, into Latin, adding a grammatical analysis. The examination extends over four days.

Oral Examination.—The subjects of the oral examination are the following:—(1) General grammar and prosody of the German language, the chief epochs of natural history and literature, and the national classics; (2) Translation and analysis of extracts from Cicero, Sallust, Livy, Virgil and Horace; parts of the examination are conducted in Latin; (3) Translation and analysis of Greek prose, and of portions of Homer, with questions on Greek grammar, history, arts, and mythology; (4) Translation from French or English classics, with conversation; (5) Questions on Christian doctrines, dogmas, or morals, church history, and the Bible; (6) Arithmetic, the simpler parts of algebra and geometry, logarithms, and plane trigonometry; (7) History and geography, ancient (especially Greek and Roman) and modern history, and geography (physical, mathematical, and political); (8) Natural history, classification; (9) Those portions of physics which can be treated by elementary mathematics; (10) The elements of moral philosophy, psychology and logic. The future theological student has also to translate and analyze a portion of one of the historical books of the Old Testament.

Certificate of Final Examination.—After the examination, the commission that has conducted it proceeds, on a comparison of notes taken during its course by the different members (each member having a vote), to a selection of those students who may be deemed qualified to receive a certificate called a certificate of maturity (*Maturitätszeugniss*.) Those who have not satisfied the examiners are remanded to their class, but may again present themselves, after an interval of six months, for another trial, unless they are judged entirely unfit to pursue a literary career. The certificate of maturity is indispensable for matriculation in either of the faculties of theology, law, medicine or philosophy, in one of the national universities, for admission to the examination for an academical degree, to compete for one of the bursaries at the universities, or to the government examination, by which alone he can be appointed to an office in State or Church, or to practice as a medical man or lawyer.

Teachers of Gymnasium.—The teachers of the gymnasium must all have attended a university, in which they enter one of the philological or pedagogical seminaries attached to the universities. To qualify for the different master-ships in a gymnasium in Prussia, the following special examinations have to be passed:—(1) The general government examination, *pro facultate docendi*, on leaving the university; (2) For a special post; (3) For every step of promotion; (4) For a rectorship.

Statistics.—According to the following Tables, compiled from Dr. Wiese's Report on the High Schools of Prussia, (*Berlin*, 1869.) and the School Kalendar of Dr. Mushacké for 1869, there were for all the German population, (72,233,147.) 947 institutions for Secondary Education, with 12,469 teachers and 213,976 students. The number and grade of these institutions for the principal German States will be seen in the Tables which follow.

Name of the State.	Gymnasien,†				Real-schools of 1st class.				Real-schools of 2d class.				Higher burgher schools.				Total.	
	Number.	Teachers.	Scholars.	Number.	Teachers.	Scholars.	Number.	Teachers.	Scholars.	Number.	Teachers.	Scholars.	Number.	Teachers.	Scholars.	Number.	Teachers.	Scholars.
1. Prussia.....	127	2,908	54,366	25	180	2,364	64	971	19,422	14	196	3,430	469	549	9,500	363	4,740	82,949
2. Saxony.....	11	203	2,763	11	39	2,037	6	109	2,037	1	6	88	3	33	1,517	16	312	2,440
3. Saxe-Weimar.....	3	39	572	1	11	237	1	12	250	1	1	1	1	27	1,254	5	82	2,427
4. Saxe-Coburg-Gotha.....	2	33	723	1	11	237	1	12	250	1	1	1	1	27	1,254	5	82	2,427
5. Saxe-Meiningen.....	2	33	723	1	11	237	1	12	250	1	1	1	1	27	1,254	5	82	2,427
6. Saxe-Altenburg.....	1	16	160	1	7	147	1	9	152	1	10	138	1	11	191	3	20	512
7. Schwarzburg-Rudolstadt.....	1	16	160	1	7	147	1	9	152	1	10	138	1	11	191	3	20	512
8. Schwarzburg-Sondershausen.....	2	23	238	1	7	147	1	9	152	1	10	138	1	11	191	3	20	512
9. Reuss-Greiz.....	2	23	238	1	7	147	1	9	152	1	10	138	1	11	191	3	20	512
10. Reuss-Schleiss.....	2	23	238	1	7	147	1	9	152	1	10	138	1	11	191	3	20	512
11. Anhalt.....	4	77	1,077	1	11	132	1	19	344	1	4	33	1	24	630	5	68	1,302
12. Brunswick.....	6	84	1,307	1	11	132	1	19	344	1	4	33	1	24	630	5	68	1,302
13. Brunswick-Strelitz.....	3	28	583	1	11	132	1	19	344	1	4	33	1	24	630	5	68	1,302
14. Mecklenburg-Schwerin.....	5	75	1,580	1	10	85	1	15	143	1	11	143	1	11	647	2	28	790
15. Oldenburg.....	4	47	644	1	10	85	1	15	143	1	11	143	1	11	647	2	28	790
16. Lippe-Deimold.....	2	24	321	1	10	85	1	15	143	1	11	143	1	11	647	2	28	790
17. Schaumburg-Lippe.....	1	12	190	1	12	283	1	20	358	2	680	35	3	20	549	4	31	664
18. Waldeck.....	1	11	134	1	12	283	1	20	358	2	680	35	3	20	549	4	31	664
19. Bremen.....	1	15	217	1	12	283	1	20	358	2	680	35	3	20	549	4	31	664
20. Hamburg.....	2	21	232	1	12	283	1	20	358	2	680	35	3	20	549	4	31	664
21. Lubeck.....	1	9	214	1	12	283	1	20	358	2	680	35	3	20	549	4	31	664
Total North German Union.....	253	3,686	66,612	30	231	3,217	79	1,205	23,555	29	947	5,430	55	525	14,282	484	6,836	115,868
1. Hesse-Darmstadt.....	6	68	1,080	1	10	187	10	103	1,887	1	1	1	1	153	16	16	153	2,969
2. Bavaria.....	29	613	7,558	1	36	574	6	61	910	1	1	1	1	246	2,063	87	913	9,937
3. Wurttemberg.....	7	168	2,576	1	117	2,037	6	92	1,869	1	1	1	1	296	21	21	296	4,841
4. Baden.....	6	67	969	1	117	2,037	6	92	1,869	1	1	1	1	296	21	21	296	4,841
5. Liechtenstein.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5,834
Total South German States.....	48	936	11,467	13	155	2,611	34	216	4,122	1	1	1	1	440	5,023	166	1,761	33,531
Austria, (German Provinces).....	97	1,532	32,076	1	1	1	1	64	1,081	48	597	10,547	1	1	1	151	2,193	43,794
Austria, (Hungary).....	132	1,335	26,722	1	1	1	1	9	1,57	23	215	4,094	1	1	1	156	1,639	31,873
Total Austrian monarchy.....	229	2,867	58,798	1	1	1	1	73	1,138	71	912	14,641	1	1	1	307	3,832	74,577
Grand total.....	490	10,592	183,709	43	386	5,826	110	1,521	28,865	100	1,859	20,071	133	965	17,305	937	12,469	213,976

TABLE III.—Statistics of Superior (university) Education

THE UNIVERSITIES OF GERMANY, INCLUDING THOSE OF AUSTRIA AND SWITZERLAND—WINTER SEMESTER, 1899.

LOCATION.	Date of foundation.	TEACHERS.						STUDENTS.								
		Regular professors.	Extraordinary professors.	Honorary professors.	Private teachers.	Teachers of languages, exercises.	Total of all kinds.	Theology.		Law and finance.	Medicine and pharmacy.	Philosophy and philology.	Total.		Total number.	Number belonging to other states.
								Catholic.	Protestant.				Matriculated.	Not matriculated.		
Basle, Switzerland	1480	30	12	..	15	3	60	..	55	11	34	91	121	..	1	27
Berlin, Prussia	1809	54	54	2	69	7	177	..	377	652	441	898	258	1,245	3,503	470
Bern, Switzerland	1834	98	7	3	28	1	67	..	22	65	139	46	224	39	273	15
Bonn, Prussia	1818	27	11	..	18	4	60	208	46	173	201	247	875	34	909	75
Breslau, Prussia	1702	44	14	1	..	..	70	135	67	160	166	313	880	63	943	40
Erlangen, Bavaria	1743	33	10	..	3	..	45	135	902	69	98	30	309	..	309	113
Freiburg, Baden	1454	31	11	..	7	3	52	..	..	53	51	43	382	9	391	33
Gießen, Hesse-Darmstadt	1637	30	10	1	17	..	61	..	25	80	95	99	301	14	319	90
Göttingen, Hanover	1737	53	34	5	26	9	119	150	150	166	153	225	794	1	705	215
Graz, Austria	1585	35	5	8	11	4	63	..	..	..	..	..	..	..	567	..
Greifswalde, Prussia	1456	33	7	..	12	3	55	..	33	19	239	100	391	34	435	21
Halle, Prussia	1694	40	16	1	19	6	83	..	314	53	120	331	858	80	938	186
Heidelberg, Baden	1386	39	27	3	39	14	111	..	63	877	70	149	459	83	638	163
Jena, Saxe-Weimar	1548	25	14	8	13	6	68	..	92	83	61	136	372	34	546	172
Innsbruck, Austria	1677	37	4	1	..	4	46	910	..	119	77	135	541	..	541	..
Kiel, Holstein	1665	50	6	..	21	3	35	..	32	80	60	24	156	5	161	28
Königsberg, Prussia	1344	38	7	..	94	4	69	..	77	85	114	166	440	18	498	18
Leipzig, Saxony	1409	45	45	4	..	..	129	..	366	983	923	258	1,374	63	1,437	863
Marburg, Hesse-Cassel	1527	39	6	..	14	6	65	..	69	22	198	110	329	16	345	25
Münch, Bavaria	1472	63	13	11	25	5	117	116	..	528	336	337	1,337	..	1,337	213
Münster, Prussia	1693	13	8	..	..	..	21	823	..	..	..	..	..	8	444	26
Prague, Austria	1246	48	90	..	..	4	72	..	..	..	..	..	1,442	..	1,442	..
Rostock, Mecklenburg	1419	25	3	1	6	3	37	..	39	66	42	18	..	..	165	..
Tübingen, Württemberg	1477	43	17	3	8	6	75	101	331	71	128	85	777	8	785	238
Vienna, Austria	1365	64	55	..	..	10	109	..	..	..	..	..	3,430	..	3,430	..
Würzburg, Bavaria	1382	42	8	..	10	3	63	77	..	141	315	118	650	..	650	944
Zürich, Switzerland	1838	29	9	..	..	..	38	..	51	90	124	36	341	20	363	63

III. SUPERIOR AND PROFESSIONAL INSTRUCTION.

Superior instruction is given either in the Universities, or in Polytechnic schools of the highest grade. The latter are usually classed and will be described with Special Schools.

The high standard of University instruction is maintained (1) by the *Certificate of Maturity*—the evidence of having completed in a satisfactory manner the eight years' course of a Gymnasium; and (2) by the government examination of all candidates for employment in any department of the public service, or who aspire to practice as a lawyer or physician, pastor, or teacher—to be admitted to which, the candidate must produce certificates of having attended a University for at least three years. The examinations are conducted by government commissions, composed of scientific and practical men. The following summary is specially applicable to Prussia, but generally, to all the German States.

(1.) *Jurisprudence*.—To obtain a license to practice as a solicitor or barrister, or to fill a State appointment in the Civil Service, the candidate must have attended at a University, for the space of three and a half years, the lectures on the following subjects:—Roman Law, German and French Civil Law; Statute Law and Common Law of Prussia; Civil and Criminal Law and Procedure; International Law; German State History and History of German Law; Canon Law; Philosophy of Law; Feudal Law; Civil Bar-practice, and the Art of Reporting; Forensic Medicine; and National Economy. Besides the above, he must attend three courses, at his choice, in the faculty of Arts and Sciences.

The State examination is both written and oral. The former comprehends all the above-named branches; and the *Corpus juris civilis Romani* is the only book allowed him for reference. The oral examination is on Roman Law, the Common Law of Baden, Criminal Law and Civil Pleadings, and National Economy. The examination commission is appointed jointly by the Ministries of Justice, and Home Affairs, and consists usually of "Ministerial Councilors."

This is the first stage. The candidate, who has passed this examination, is called *Rechtspraktikant*; has now to serve for two years in district courts, in courts of justice of different grades, and in government offices; and after having thus gained the necessary practice in these departments, he is admitted to the second practical examination, before another commission of lawyers. This second examination embraces—Constitutional Law of the State, Common Law, Criminal Law and Procedure, the Rules observed in Civil Pleadings. This is a written examination, followed by an oral exposition of some subject relating to judicial administration, the conduct of a prosecution or defense. The candidate has placed in his hands, a week previous to his discourse, the documents with which the latter is to deal. An oral examination on the above subjects accompanies the practical test. The candidate is now called *Referendarius*, and can accept a public appointment, or practice as a solicitor or barrister.

(2.) *Finance*.—The students in this department are called *Cameralisten*, and are all destined for the public service. It comprehends public debt, taxes, administration of public property, mines, &c. They are obliged to attend, during three years and a half, lectures at a University on the following subjects:—Mathematics (arithmetic, algebra, geometry, plane trigonometry, elements of applied geometry, and mechanics, actuarial and other calculations); Zoölogy; Botany; Geognosy; Physics; Chemistry; Agriculture; Care of Forests; Mining; Technology; Commercial Science; National Economy; Finance (theoretical and practical); Police Regulations; Public Right. Besides the above course, the student must attend, during the first two years, one philological, philosophical, or historical course of lectures, and is expected to continue the study of modern languages.

The State examination takes place under the direction of the Ministry of Finance: it is conducted by councilors of this department, and by specially appointed examiners, and is both written and oral. The written examination

embraces all the branches just enumerated; the oral examination, only such as are deemed appropriate for the special appointment aimed at by the candidate.

(3.) *Protestant Theology*.—The students of Protestant Theology must reside at the University for about two and a half years, and attend the following course:—Introduction to the Old and New Testament; Exegesis of the same; History of the Church and Dogmas; Dogmatics and Morals; Homiletics and Catechetics.

The student must then pass examination before the director of the theological seminary connected with the University and special commissioners. The successful candidates are admitted into the theological seminary in Wittenberg, and attend in the latter, as in the University, the following gratuitous lectures, and receive, besides, a bursary (i. e., free board and lodging). The course of lectures extends over twelve months, and comprises:—Instruction in preaching and catechising; Liturgics; Pastoral Doctrine (comprising primary education); Church Law; Practical Exposition of the Old and New Testaments; Practice in discussion and argument.

The student now presents himself for the State examination, the first test being the delivery of a sermon. This examination consists of two parts, a preliminary and a principal one. The preliminary examination includes the following subjects:—Oral translation and explanation of Roman and Greek authors; Latin composition; Translation from Hebrew and exposition; General History; Mathematics and Physics. The principal examination includes:—Church History; Hermeneutics, criticism and exegesis; Dogmatics; Morals; Homiletics; Catechetics; Philosophy (logic, psychology, anthropology, philosophy of religion, practical philosophy). Having passed this examination, the candidate must first serve two years as a curate, before he can be appointed a pastor.

(4.) *Roman Catholic Theology*.—Students of the Roman Catholic faculty in Germany must have already passed their examination of "maturity" before State commissioners. The law prescribes a residence of three years at the University. The number and kind of theological lectures to be attended by the student is appointed by the bishop; the Roman Catholic clergy and the government being at all times engaged in a vigorous contest for supremacy. But the State requires that a student of Roman Catholic theology shall have received a general literary education before he is admitted to any office in his church; all church appointments in Germany being subject to the approval of the secular government. Besides the theoretical lectures, attendance on the courses of Latin, Greek, philosophy and history is enjoined; and the State prescribes also a general literary examination, common both for Protestant and Roman Catholic candidates of theology, in the following subjects:—Latin Composition; Explanation of easier Greek authors; History of Philosophy: General History and German History; History of German Literature; Constitution and Administrative Law.

(5.) *Instructors in Secondary Schools*.—Teachers in a gymnasium or *Höhere Bürgerschule*, must, in addition to a theoretical examination, after two years' practice, also pass a practical one. There are two classes of teachers—viz., (1) philological, and (2) mathematical and scientific. Both classes must spend three years at a university. The mathematical and scientific teacher may also, after two years' university study, attend in the third year a Polytechnic school. The *Philological Students* have to attend the following lectures:—Archæology; Grammar and Prosody; Roman and Greek authors, six at least; Roman and Greek antiquities, history and literature; Arithmetic; Physics; Pædagogic. Besides these lectures, the students are to read accurately the following authors:—Homer, Herodotus, Sophocles, Horace, Cæsar, Xenophon, Virgil, Livy, Cicero, Tacitus, and others.

At Berlin, Breslau, Stettin, Halle, and Magdeburg, there is a pedagogical seminary, in which candidates can attend exercises during two years. There is also a historical seminary for special students and teachers of history at Berlin, Bonn and Königsberg.

The *Mathematical and Scientific Students and Teachers* attend the following lectures:—Arithmetic, Algebra, Plane and Solid Geometry, Plane and Spherical Trigonometry, Analytical Geometry and Mechanics, Differential and Integral Calculus, Surveying, &c., Physics, Chemistry, Zoölogy, Botany. Besides these professional lectures, they are obliged to attend, at their option, three philological and historical courses. Both the philological and the mathematical and

scientific candidates have first to pass a common examination; subsequently each of the two classes has special examinations.

The special examination for philologists consists again of three grades:—(1) *Formalexamen*, (2) *Realexamen*, and (3) *Fachexamen*, in History, German, French, and English or Philosophy, according to choice. Optional subjects: Mathematics, Natural History, French, English, Hebrew. All is accurately prescribed in detail.

The special examination for mathematical and scientific candidates is of three grades: (1) Mathematics, (2) Natural Sciences, (3) Optional examination in certain branches. All details minutely prescribed. The Commission of Examiners is appointed by the minister in coöperation with the Supreme Council of Education.

To the universities of Berlin, Bonn, Breslau, Griefswald, Königsberg and Munster, a philological seminary is attached, consisting of two sections, a lower and an upper. The lower is devoted to exercises in writing and speaking Latin, to Greek composition and current reading of authors. The upper seminary is devoted to practice in the interpretation of Latin authors, in methodical and pædagogical exposition, philological and critical exercises.

(6.) *Medicine*.—The medical student must attend the university for four years. His course of studies is divided into two parts, the preliminary and the purely medical. At the end of two years, he is admitted to his preliminary examination (fee 40 florins.) The preliminary course includes the following obligatory lectures:—Botany, Zoölogy, Mineralogy, Geognosy, Physics, Chemistry (theoretical and practical,) Anatomy with dissections, Physiology, and three subjects, at his option, in the faculty of Philosophy and Art.

Having passed the preliminary examination, the medical student has to attend, during the remaining two years of his university course, the following lectures:—General and special Pathology and Therapeutics, Comparative, Pathological; and Chirurgical Anatomy; Ophthalmics; Chirurgy, with exercises in operations, application of machines, and dressing; Obstetrics, Pharmacy, *Materia Medica*, Public Hygiene, Diseases of domestic animals, History of Medicine.

Besides these lectures, the student must attend a clinical course in Medicine, Chirurgery and Obstetrics, and obstetrical clinics, and practice under the direction of the professor. Having thus gone through the prescribed course, he is admitted to the chief examination (fee, sixty florins.) The examination is both oral and written—in the examination hall, in the dissecting-room, and at the sick-bed. The license to practice is not granted until the candidate has passed his examination in medicine, in surgery, and in midwifery; and not for one of these branches only.

TABLE IV.—*Special and Professional Schools in Germany as constituted in 1886.*

State.	Area in English sq. miles.	Population.	Agriculture.	Architecture.	Blind.	Commerce.	Deaf-mutes.	Fine arts.	Forestry.	Military.	Mining.	Music.	Nautical.	PolYTECHNICA.	Surgery special.	Technical.	Veterinary sur- gery.
1. Anhalt.....	869	193,646	1			1	11	1	2	13	5	3	6	2	6	4	2
2. Austria (German Provinces).....	124,116	20,692,736	13	1	14	10	11										
3. Austria, (non-German Provinces).....	103,118	13,830,154	4		2	1	2		4	2	3		2	1	2	1	1
4. Baden.....	5,651	1,428,090	2		2	1	1	1	1	2				3		44	1
5. Bavaria.....	29,347	4,807,440	4	1	3	2	10	1	1			11		1		92	1
6. Brunswick.....	1,846	993,708	1		1		1							3		3	
7. Hanover.....	14,846	1,898,070	1		1	3	1		1	1	1		3	1		1	
8. Hesse-Cassel.....	4,430	743,063	1					1		1						1	
9. Hesse-Darmstadt.....	2,866	816,902	2		1	1	2		1	1				1			1
10. Holslein-Lauenburg.....	3,630	694,123															
11. Lichtenstein.....	64	7,150															
12. Lippe-Deimold.....	445	111,536					1										
13. Lippe-Schaumburg.....	212	31,383															
14. Luxemburg.....	1,228	209,440															
15. Mecklenburg-Schwerin.....	4,834	533,612	1		1	1	1			1			3	1		40	1
16. Mecklenburg-Strelitz.....	1,997	99,060														27	6
17. Nassau.....	1,892	465,636	1			1	1		1	1	1		1	1		295	1
18. Oldenburg.....	2,417	314,416	1						4	31	9	7	5	9			
19. Prussia.....	107,757	18,269,563	34	6	10	6	98	3									
20. Reuss-Greiz.....	148	43,924															
21. Reuss-Schleitz.....	297	86,472				1	1				3	2	1	2		7	1
22. Saxony.....	6,777	2,343,994	3	5	2	4	2	2	1	1							
23. Saxe-Altenburg.....	297	141,839	2														
24. Saxe-Coburg-Gotha.....	816	164,527	1			1	1	1				1				3	
25. Saxe-Meiningen.....	953	178,065	1			1	1	1								1	
26. Saxe-Weimar.....	1,421	280,301	1	2	1	1	1		1								
27. Schwarzburg-Rudolstadt.....	340	73,732															
28. Schwarzburg-Sondershausen.....	318	68,189															
29. Waldeck.....	468	59,143															
30. Wurttemberg.....	7,673	1,747,128	6	1	4	1	2	1	1	2				2			
31. Free Cities of Bremen.....	106	144,091			1	1											1
32. Frankfurt.....	43	87,518				1											
33. Hamburg.....	148	229,941			1												
34. Lubeck.....	127	50,614											2				1

SPECIAL SCHOOLS OF AGRICULTURE AND RURAL ECONOMY.

I. AGRICULTURE.

[Schools marked (*) are special schools; those marked (†) are of the highest grade of the class to which they belong.]

LOCATION.		Name.
Town.	State.	
Annaberg.....	Prussia.....	Agricultural School.
Baderleben.....	do.....	Do.
Baiersdorf.....	Austria.....	School of Rural Economy.
Baireuth.....	Bavaria.....	Agricultural School.
Bauhof.....	Prussia.....	Do.
Beberbeck.....	do.....	School of Rural Economy.
Berlin.....	do.....	Do.
Birtalan.....	do.....	Agricultural School.
Brunswick.....	Brunswick.....	Normal School for the Cultivation of Flax.*
Brün.....	Austria.....	School of Rural Economy.
Carlsbof.....	Mecklenburg.....	Do.
Carlsruhe.....	Baden.....	School of Gardening.*
		School of Fruit Culture.*
		Winter School of Rural Economy.
Chrostowo.....	Prussia.....	Agricultural School.
Cleve.....	do.....	Middle School of Rural Economy.
Constance.....	Baden.....	School of Meadow Culture.*
Czerak.....	Prussia.....	Do.*
Darmstadt.....	Hesse-Darmstadt.....	School of Agriculture and Industry.
Denklingen.....	Prussia.....	Agricultural School.
Diesdorf.....	do.....	Do.
Donbrawets.....	Austria.....	Do.
Drunsfeld.....	Hanover.....	Do.
Dresden.....	Saxony.....	Prefatory School of Agriculture.
Ebstorf.....	Hanover.....	Agricultural School.
Echternach.....	Württemberg.....	Do.
Eldena.....	Prussia.....	Academy of Rural Economy.†
Ellwangen.....	Württemberg.....	Agricultural School.
Frankenfelde.....	Prussia.....	School for Shepherds.*
Freysing.....	Bavaria.....	Agricultural and Trade School.
Giesen.....	Hesse-Darmstadt.....	School of Rural Economy.
Glichow.....	Prussia.....	Agricultural School.
Göttingen-Weende.....	Hanover.....	Academy of Rural Economy.†
Grätz.....	Austria.....	School of Rural Economy.
Grossau.....	do.....	Agricultural School.
Halle.....	Prussia.....	School of Rural Economy.
Hasenfelde.....	do.....	Agricultural School.
Hepen.....	do.....	Improvement School of Rural Economy.
Herford.....	do.....	School of Rural Economy.
Hildesheim.....	Hanover.....	Agricultural School.
Hohenheim.....	Württemberg.....	Do.
Hracholusk.....	Austria.....	Do.
Jena.....	Saxe-Weimar.....	Higher School of Rural Economy.†
Irnharding.....	Austria.....	National School of Agriculture.
Kaad.....	do.....	Agricultural School.
Kannstadt.....	Württemberg.....	School of Rural Economy.
Kaufbeuren.....	Bavaria.....	School of Trade and Rural Economy.
Kirchberg.....	Württemberg.....	Agricultural School.
Klosterneuburg.....	Austria.....	School of Vine and Fruit Culture.*
Köhen.....	Anhalt.....	School for Gardeners.*
Laibach.....	Austria.....	School of Rural Economy.
Landshut.....	Bavaria.....	School of Trade and Rural Economy.
Lichtenhof.....	do.....	School of Rural Economy.
Lebwerda.....	Austria.....	Agricultural School.
Lüdinghausen.....	Prussia.....	Do.
Marburg.....	Austria.....	School of Vine Culture.*
Mödling.....	do.....	Improvement School of Rural Economy.
Neu-Aigen.....	Austria.....	School of Rural Economy.
Neu-Deckerhof.....	Bavaria.....	Agricultural School.
Neuenburg.....	do.....	Do.

AGRICULTURE—Continued.

LOCATION.		Name.
Town.	State.	
Neutitschein.....	Austria.....	Agricultural School.
Ochsenhausen.....	Württemberg.....	Do.
Offenburg.....	Baden.....	School of Meadow Culture.*
Pfrentsch.....	Bavaria.....	School of Agriculture.
Do.....	do.....	School of Meadow Culture.*
Plagwitz.....	Saxony.....	School of Rural Economy.
Polkow.....	Prussia.....	Agricultural School.
Poppelan.....	do.....	Do.
Poppelsdorf.....	do.....	Academy of Rural Economy.†
Preetz.....	Holstein.....	Higher School of Rural Economy.†
Proskau.....	Prussia.....	Academy of Rural Economy.†
Rabin.....	Austria.....	Agricultural School.
Ramhof.....	Bavaria.....	Do.
Ratisbon.....	do.....	Winter School of Rural Economy.
Regenwalde.....	Prussia.....	School of Rural Economy.
Reifenstein.....	do.....	Agricultural School.
Rheinbach.....	do.....	Improvement School of Rural Economy.
Riesenrodt.....	do.....	Agricultural School.
Sans Souci.....	do.....	School for Gardeners.*
Schellen.....	do.....	Agricultural School.
Scheuerfeld.....	Coburg-Gotha.....	Do.
Schleishelm.....	Bavaria.....	School of Practical Farming.
Siebenhufen.....	Prussia.....	Agricultural School.
Siegen.....	do.....	School of Meadow Culture.*
Spitzings.....	do.....	Agricultural School.
Tabor.....	Austria.....	High School of Rural Economy.†
Tharandt.....	Saxony.....	Academy of Agriculture and Forestry.†
Thüngen.....	Bavaria.....	School for Shepherds.*
Treves.....	Prussia.....	School of Meadow Culture.*
Triedorf.....	Bavaria.....	Agricultural School.
Weihenstephan.....	do.....	Central High School of Rural Economy.†
Weinsberg.....	Württemberg.....	School of Vineyards.*
Wielowicz.....	Prussia.....	Agricultural School.
Vienna.....	Austria.....	High School of Rural Economy.†
Do.....	do.....	School of Horticulture.*
Wiesbaden.....	Nassau.....	School of Rural Economy.
Wetino.....	Prussia.....	Agricultural School.
Würzburg.....	Bavaria.....	Improvement School of Rural Economy.
Xanten.....	Prussia.....	Agricultural School.
Znaïm.....	Austria.....	Do.
Zodel.....	Prussia.....	Do.

2. FORESTRY.

Aschaffenburg.....	Bavaria.....	Central School of Forestry.†
Aussee.....	Austria.....	School of Forestry.
Berlin.....	Prussia.....	School for Huntsmen.
Brunswick.....	Brunswick.....	School of Forestry.
Carlsruhe.....	Baden.....	Do.
Düben.....	Prussia.....	Do.
Eisenach.....	Saxe-Weimar.....	Do.
Freiburg.....	Prussia.....	Do.
Hinterbrühl.....	Austria.....	School of Forest Culture.
Hohenheim.....	Württemberg.....	Academy of Forestry.†
Kiel.....	Holstein.....	School of Forestry.
Königsberg.....	Prussia.....	Do.
Kreutz.....	Austria.....	Do.
Leoben.....	do.....	Do.
Mariabrunn.....	do.....	Academy of Forestry.
Münden.....	Hanover.....	Do.†
Nagy.....	Austria.....	School of Forestry.
Neustadt-Ebersw. lde.....	Prussia.....	Do.
Przibram.....	Austria.....	Do.
Schemnitz.....	do.....	Academy of Forestry.
Tharandt.....	Saxony.....	Do.†
Weisswasser.....	Austria.....	School of Forestry.
Windschael.....	do.....	Do.

3. SPECIAL SCHOOLS OF VETERINARY SCIENCE.

Berlin.....	Prussia.....	Veterinary School.
Do.....	do.....	Military School of Veterinary Practice.
Carlsruhe.....	Baden.....	Veterinary School.
Dresden.....	Saxony.....	Do.
Giessen.....	Hesse-Darmstadt.	Do.
Göttingen.....	Hanover.....	Do.
Hanover.....	do.....	Do.
Marburg.....	Hesse-Cassel.	Do.
Munich.....	Bavaria.....	Do.
Münster.....	Prussia.....	Do.
Schwerin.....	Mecklenburg.....	Do.
Stuttgart.....	Württemberg.....	Do.
Vienna.....	Austria.....	Do.

SPECIAL SCHOOLS OF ARCHITECTURE.

DESIGN AND CONSTRUCTION.

Berlin.....	Prussia.....	Academy of Architecture.†
Do.....	do.....	Practical School of Architecture.
Breslau.....	do.....	Practical School of Art and Architecture.
Carlsruhe.....	Baden.....	School of Architecture and Engineering.
Chemnitz.....	Saxony.....	Practical School of Architecture.
Coburg.....	Coburg-Gotha.....	Do.
Dantzic.....	Prussia.....	School of Art and Trade.
Dresden.....	Saxony.....	Practical School of Architecture.†
Eisenach.....	Saxe-Weimar.....	School of Architecture and Trade.
Erfurt.....	Prussia.....	Practical School of Art and Architecture.
Halberstadt.....	do.....	School of Architecture and Trade.
Hechingen.....	do.....	Do.
Holzminden.....	Brunswick.....	Practical School of Architecture.
Idstein.....	Nassau.....	Do.
Kalen-Nordheim.....	Saxe-Weimar.....	School of Architecture and Trade.
Königsberg.....	Prussia.....	School of Art and Architecture.†
Krefeld.....	do.....	Do.
Leipste.....	Saxony.....	Practical School of Architecture.
Magdeburg.....	Prussia.....	Practical School of Art and Architecture.
Munich.....	Bavaria.....	Practical School of Architecture.†
Nienburg.....	Hanover.....	Do.
Plauen.....	Saxony.....	Do.
Ratisbon.....	Bavaria.....	Do.
Saarbrück.....	Prussia.....	School of Architecture and Trade.
Stuttgart.....	Württemberg.....	College of Architecture.*
Weimar.....	Saxe-Weimar.....	School of Architecture and Trade.
Zittau.....	Saxony.....	Practical School of Architecture.

[Courses of instruction, both theoretical and practical, in the design and construction of buildings exist in all polytechnic schools.]

POLYTECHNIC AND OTHER TECHNICAL SCHOOLS.

[Under the general designation of Polytechnic, &c., are included almost every variety of special instruction in civil engineering, construction of all kinds, (buildings, machinery, roads, &c.,) technology, machinery, &c.]

Aix-la-Chapelle.....	Prussia.....	Polytechnic School.†
Amberg.....	Bavaria.....	Trade School.
Annaberg.....	Saxony.....	School of Lace-making.
Aachaffenburg.....	Bavaria.....	Trade School.
Anspach.....	do.....	Do.
Aug-burg.....	do.....	Technical Real-Gymnasium.
Do.....	do.....	Trade School.
Do.....	do.....	School of Machine Construction.†
Do.....	do.....	Practical Course for Brewers.
Baireuth.....	do.....	Trade School.
Bamberg.....	do.....	Do.
Barmen.....	Prussia.....	Higher and Lower Trade School.
Berchtesgaden.....	Bavaria.....	School of Industry and Drawing.
Berlin.....	Prussia.....	Royal Trade Academy.†

POLYTECHNIC SCHOOLS, &c.—Continued.

LOCATION.		Name
Town.	State.	
Berlin.....	Prussia.....	Art and Practice School.
Do.....	do.....	School of Telegraphy.
Do.....	do.....	School of Drawing.
Do.....	do.....	City Trade School.
Do.....	do.....	Normal School of Drawing.
Do.....	do.....	Women's School of Drawing.
Bielefeld.....	do.....	Trade School.
Bochum.....	do.....	Do.
Brunswick.....	Brunswick.....	"Carolinum Collegien." School of Technics, Commerce, Agriculture, and Forestry, or Polytechnic School.†
Briesen.....	Prussia.....	Trade School; Trade School for Girls.
Brünn.....	Austria.....	Technical Institute.
Do.....	do.....	Trade School, in four divisions, (architecture, machinery, drawing, and practical chemistry.)
Carlsruhe.....	Baden.....	Polytechnic School.†
Do.....	do.....	Trade School.
Cassel.....	Hesse-Cassel.....	Higher Trade School.
Do.....	do.....	School of Drawing.
Chemnitz.....	Saxony.....	Royal Higher Trade School.†
Do.....	do.....	Weaving School for Overseers.
Coblentz.....	Prussia.....	Trade School.
Cologne.....	do.....	Do.
Dantzie.....	do.....	Do.
Darmstadt.....	Hesse-Darmstadt.....	Polytechnic School.†
Drebach.....	Saxony.....	School of Lace-making.
Dresden.....	do.....	Polytechnic School.†
Do.....	do.....	School of Stenography.
Do.....	do.....	School of Weaving.
Echternach.....	Luxemburg.....	Polytechnic School.†
Einbeck.....	Hanover.....	Weaving School.
Elberfeld.....	Prussia.....	Industrial High School.
Do.....	do.....	Higher Weaving School.
Erfurt.....	do.....	Trade School.
Do.....	do.....	Institute of Pharmacy.
Erlangen.....	Bavaria.....	Trade School.
Frankenberg.....	Saxony.....	Technical (Trade) School.
Frankfort-on-Main.....	Frankfort.....	Polytechnic School.†
Frankfort-on-Oder.....	Prussia.....	Trade School.
Freysing.....	Bavaria.....	Do.
Garmisch.....	do.....	Drawing School for Artisans.
Görlitz.....	Prussia.....	Trade School.
Grätz.....	Austria.....	"Johannum," a school for different branches of sciences.†
Graudenz.....	Prussia.....	Trade School.
Grüneberg.....	do.....	Normal School of Weaving and Manufactures.
Gumpendorf.....	Austria.....	Higher Weaving School.
Hagen.....	Prussia.....	Trade School.
Halle.....	do.....	Do.
Hamburg.....	Hamburg.....	Do.
Do.....	do.....	School for Journeyman Builders.
Hanover.....	Hanover.....	Polytechnic School.†
Hildesheim.....	do.....	Higher Trade School.
Hof.....	Bavaria.....	Trade School.
Ingolstadt.....	Bavaria.....	Trade School.
Innsbruck.....	Austria.....	Do.
Do.....	do.....	Industrial School for Drawing and Carving.
Iserlohn.....	Prussia.....	Trade School.
Jena.....	Saxe-Weimar.....	Pharmaceutical Institute.
Kaiserslautern.....	Bavaria.....	Trade School.
Kempten.....	Bavaria.....	Do.
Königsberg.....	Prussia.....	Do.
Krefeld.....	do.....	Higher Weaving School.
Do.....	do.....	Mechanical School for Journeymen Builders.
Landau.....	Bavaria.....	Trade School.
Landshut.....	do.....	Do.
Leipzig.....	Saxony.....	School for Artisans.
Do.....	do.....	School for Printers.
Lemberg.....	Austria.....	Polytechnic School.
Liegnitz.....	Prussia.....	Trade School.

POLYTECHNIC SCHOOLS, &c.—Continued.

LOCATION.		Name.
Town.	State.	
Linnbach	Saxony	Special School for Weaving.
Lübeck	Lübeck	Trade School.
Mannheim	Baden	City Weaving School.
Memmingen	Bavaria	Trade School.
Mülheim	Prussia	Higher Weaving School.
Munich	Bavaria	Polytechnic School.
Do	do	Technical Industrial School.
Do	do	Trade School.
Do	do	School of Applied Arts.
Do	do	School of Arts for Girls.
Münster	Prussia	Trade School.
Neuburg	Bavaria	Do.
Nördlingen	do	Do.
Nuremberg	do	Technical Real-Gymnasium.
Do	do	Technical Industrial School.
Do	do	District Trade School.
Do	do	School of Applied Art.
Oelsnitz	Saxony	School of Embroidery.
Offenbach	Hesse-Darmstadt	Industrial School of Art.
Obdruff	Saxe-Cob'g-Gotha	Trade School.
Partenkirchen	Bavaria	Workman's School of Drawing.
Pasau	do	Higher Weaving School.
Do	do	Trade School.
Potsdam	Prussia	Do.
Prague	Austria	State Technical Institute.
Do	do	Technical School of Dyeing and Printing.
Ratisbon	Bavaria	Trade School.
Rostock	Mecklenburg	Higher Trade Academy.†
Saarbrück	Prussia	Trade School.
Schneeberg	Saxony	School of Lace-making.*
Schweidnitz	Prussia	Trade School.
Schweinfurt	Bavaria	Do.
Speler	do	Technical Real-Gymnasium.
Do	do	School of Trade and Commerce.
Stein-Schönan	Austria	School of Drawing for Workers in Glass.
Stettin	Prussia	Trade School.
Stralsund	do	Do.
Straubing	Bavaria	Do.
Stuttgart	Württemberg	Two Trade Improvement Schools.
Do	do	Polytechnic School.†
Treves	Prussia	Trade School.
Waldshut	Baden	Do.
Werdau	Saxony	Higher Weaving School.
Vienna	Austria	School for training Teachers in the Physical Sciences.
Do	do	Polytechnic School.†
Do	do	School of Applied Art.
Do	do	Trade School.
Wiesbaden	Nassau	Polytechnic School.†
Worms	Hesse-Darmstadt	School for Beer Brewers and Manufacturers of Yeast and Vinegar.
Wunsiedel	Bavaria	Trade School.
Würzburg	do	Technical Real-Gymnasium.
Do	do	Trade School.
Zweibrücken	do	Do.

SPECIAL SCHOOLS OF MINING.

[Instruction in mineralogy, metallurgy, mining, engineering, and associated subjects is given in the university and laboratories of Berlin, Vienna, Munich, and all the universities of Germany.]

LOCATION.		Name.
Town.	State.	
Altenberg	Saxony	Mining School.*
Amberg	Bavaria	School of Mining and Prospecting.
Berlin	Prussia	Academy of Mining.†
Bochum	do	Mining School.
Clausthal	Hanover	Academy of Mining.†
Dillenburg	Nassau	Mining School.
Düren	Prussia	School of Metallurgy.
Eisleben	do	Mining School.
Essen	do	Do.
Freiberg	Saxony	Academy of Mining.†
Do	do	Mining School.
Halberstadt	Prussia	Do.
Karbitz	Austria	Do.
Klagenfurt	do	Do.
Leoben	do	Academy of Mining.†
Do	do	Mining School.
Praibram	do	Academy of Mining.†
Saarbrück	Prussia	Mining School.
Siegen	do	Do.
Steben	Bavaria	Do.
Tarnowitz	Prussia	Do.
Waldenburg	do	Do.
Zwickau	Saxony	School of Coal Mining.

SPECIAL SCHOOLS OF MUSIC.

Berlin	Prussia	Institute for Church Music.
Do	do	Music School for Composition and Harmony.
Breslau	do	Music School.
Cassel	Hesse-Cassel	Conservatory of Music.
Coblentz	Prussia	Musical Institute.
Cologne	do	Conservatory of Music.†
Dresden	Saxony	Do.
Düsseldorf	Prussia	Music School.
Frankfort-on-Main	Frankfort	Do.
Graz	Austria	Conservatory of Music.
Hamburg	Hamburg	Music School.
Heidelberg	Baden	Do.
Leipzig	Saxony	Do.†
Luxemburg	Luxemburg	Do.
Munich	Bavaria	Music School.†
Prague	Austria	Conservatory of Music.
Stettin	Prussia	Do.
Stuttgart	Württemberg	Music School.
Treves	Prussia	Do.
Vienna	Austria	Conservatory of Music.†

SPECIAL SCHOOLS OF COMMERCE.

LOCATION.		Name.
Town.	State.	
Berlin	Prussia	Commercial School.
Botzen	Austria	Do.
Bremen	Bremen	Do.
Breslau	Prussia	Do.
Carlruhe	Baden	Do.
Chemnitz	Saxony	Do.
Coblenz	Prussia	Do.
Dantzic	do	Commercial Academy.*
Dessau	Anhalt	Commercial School.
Dresden	Saxony	Do.
Erfurt	Prussia	Do.
Frankfort-on-Main	Frankfort	Do.
Fürth	Bavaria	Commercial and Trade School.
Gera	Reuss-Schleitz	Commercial School and High School.
Gotha	Saxe-Cob'g-Gotha	Commercial School.
Grätz	Austria	Commercial Academy.*
Hanover	Hanover	Commercial and Trade School.
Hildesheim	do	Higher Commercial School.*
Leipzig	Saxony	Commercial School; School for Dealers in Books.
Lindau	Bavaria	Commercial and Trade School.
Lübeck	Lübeck	Practical Commercial Academy and School.*
Magdeburg	Prussia	Commercial School.
Munich	Bavaria	Do.
Nuremberg	do	Do.
Offenbach	Hesse-Darmstadt	Do.
Olmütz	Austria	Do.
Prague	do	Commercial Academy.*
Reichenberg	Austria	Commercial School.
Rostock	Mecklenb'g-Sch	Do.
Trieste	Austria	Academy of Commerce and Navigation.*
Tübingen	Württemberg	Commercial School.
Weimar	Saxe-Weimar	Do.
Vienna	Austria	Commercial Academy.*
Do	do	Higher Commercial Institution.
Do	do	Commercial School.
Do	do	Com. and Trades School of Woman's Trade Assn.
Zwickau	Saxony	Commercial School.

SPECIAL SCHOOLS OF NAVIGATION.

Altona	Holstein	School of Navigation.
Barth	Prussia	School for Pilots.
Bremen	Bremen	School of Navigation.
Dantzic	Prussia	First Dock School.
Do	do	School of Navigation.
Elbfleth	Oldenburg	Do.
Emden	Hanover	Do.
Fischland	Mecklenburg	Do.
Grabow	Prussia	Do.
Do	do	School of Shipbuilding.
Gründelch	do	School of Navigation.
Hamburg	Hamburg	Do.
Do	do	Sailors' School.
Kiel	Holstein	Naval Cadet Academy.
Königsberg	Prussia	School of Navigation.
Leer	Hanover	Do.
Leipzig	Saxony	School for Pilots.
Lübeck	Lübeck	School of Navigation.
Memel	Prussia	Do.
Papenburg	Hanover	Do.
Philau	Prussia	Do.
Rostock	Mecklenburg	Do.
Stettin	Prussia	Do.
Stralsund	do	Do.
Timmel	Hanover	Do.
Trieste	Austria	Marine Academy.
Wolgast	Prussia	Elementary School of Navigation.
Wustrow	Mecklenburg	School of Navigation.

MILITARY SCHOOLS.

LOCATION.		Name.
Town.	State.	
Anklam.....	Prussia.....	Military School for the 11th Army Corps.
Annaburg.....	do.....	Military School for Boys.
Bensberg.....	do.....	Cadet School.*
Berlin.....	do.....	Military Academy.†
Do.....	do.....	Cadet School.*
Do.....	do.....	Central Military Gymnastic School.
Do.....	do.....	Staff School.†
Do.....	do.....	United Artillery and Engineer School.
Biberich.....	do.....	School for Non-commissioned Officers.
Brunswick.....	Brunswick.....	Cadet School.*
Carlsruhe.....	Baden.....	School for "Landwehr" (militia) Officers.
Cassel.....	Hesse-Cassel.....	Military School.†
Culm.....	Prussia.....	Cadet School.*
Dresden.....	Saxony.....	Cadet and Artillery School.*
Do.....	do.....	Military Riding School.
Egers.....	Prussia.....	Fourth Prussian Military School.
Erfurt.....	do.....	Military School for the 4th, 7th, and 8th Army Corps.
Fischau.....	do.....	Lower House of Education.
Hanover.....	Hanover.....	Military School.†
Do.....	do.....	Military Riding School.
Do.....	do.....	School for Non-commissioned Cavalry Officers.
Jülich.....	Prussia.....	School for Non-commissioned Officers.
Kutenberg.....	Austria.....	Upper House of Education.
Ludwigsburg.....	Württemberg.....	Military School.
Marburg.....	Austria.....	Cadet School.*
Munich.....	Bavaria.....	Higher Military Academy.†
Do.....	do.....	Cadet School.*
Do.....	do.....	School of Artillery and Engineering.
Do.....	do.....	Military School.
Nelase.....	Prussia.....	Military School for the 1st, 5th, and 6th Army Corps.
Oldenburg.....	Oldenburg.....	Military School.
Oranienstein.....	Nassau.....	Cadet School.*
Ploñ.....	Holstein.....	Do.*
Potsdam.....	Prussia.....	Do.*
Do.....	do.....	Military School for the Guard.
Do.....	do.....	Military School for the 2d and 3d Army Corps.
Do.....	do.....	Military School for Non-commissioned Officers.
Do.....	do.....	Military Orphan School.
Prerau.....	Austria.....	Lower House of Education.
St. Pölten.....	do.....	Cadet School.*
Schwedt.....	Prussia.....	Military School.
Schwerin.....	Mecklenburg-Schwerin.....	Division School.
Spandau.....	Prussia.....	Military Rifle School.
Strass.....	Austria.....	Upper House of Education.
Stuttgart.....	Württemberg.....	Military School.
Tulln.....	Austria.....	School Company for Pioneers.
Wahlstadt.....	Prussia.....	Cadet School.*
Weissenfels.....	do.....	School for Non-commissioned Officers.
Weiskirchen.....	Austria.....	Military Technical School.
Vienna.....	do.....	Central Cavalry School.†
Do.....	do.....	Military School.†
Do.....	do.....	Military Technical Academy.†
Do.....	do.....	School of Military Rule and Discipline.
Vienna suburbs.....	do.....	Military Academy.†
Znaïm.....	do.....	Military Academy for Engineers.*

TABLE V.—Secondary, Superior, and Special Schools in 33 principal towns in Germany, 1885.

Town.	Country.	Population.	HIGHER BURGHER SCHOOLS.			HIGHER GIRLS' SCHOOLS.			REAL-SCHOOLS.			GYMNASIA.			UNIVERSITIES.		Special schools.
			Schools.	Teachers.	Scholars.	Schools.	Teachers.	Scholars.	Schools.	Teachers.	Scholars.	Schools.	Teachers.	Scholars.	Professors.	Students.	
Aix-la-Chapelle	Prussia	63,811	.....	.....	.....	1	.....	.....	1	17	297	2	32	727	.....	.....	8
Augsburg	Bavaria	49,332	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Berlin	Prussia	632,395	1	13	238	7	110	2,800	7	191	3,931	11	274	5,915	193	3,202	34
Bremen	Free City	70,692	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Breslau	Prussia	163,919	.....	.....	.....	3	63	1,106	2	50	1,408	4	14	2,939	90	920	7
Brunswick	Austria	56,809	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Brunswick	Prussia	45,450	.....	.....	.....	2	42	545	1	12	320	2	12	303	.....	.....	11
Cassel	Hesse-Cassel	40,228	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Cassel	Hesse-Cassel	31,555	1	17	380	1	27	919	2	40	603	1	28	476	.....	.....	9
Carlsruhe	Baden	54,817	.....	.....	.....	1	14	311	.....	.....	.....	.....	.....	.....	.....	.....	6
Chemnitz	Saxony	122,162	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Cologne	Prussia	98,526	.....	.....	.....	5	50	708	1	23	601	3	68	1,348	.....	.....	5
Darmstadt	Hesse-Darmstadt	145,728	.....	.....	.....	1	17	414	.....	.....	.....	.....	.....	.....	.....	.....	10
Dresden	Saxony	145,728	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Düsseldorf	Prussia	145,728	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Düsseldorf	Prussia	145,728	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Erfurt	Prussia	63,098	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Frankfurt	Free City	92,188	1	32	1,021	2	18	202	3	67	1,376	1	20	213	.....	.....	4
Graz	Austria	63,176	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Halle	Prussia	45,872	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Halle	Prussia	173,683	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
Hanover	Free City	79,619	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
Hanover	Free City	79,619	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
Königsberg	Prussia	101,507	.....	.....	.....	3	45	1,346	.....	.....	.....	.....	.....	.....	.....	.....	3
Leipzig	Saxony	85,394	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
Leipzig	Saxony	85,394	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Lübeck	Free City	27,249	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Magdeburg	Prussia	96,494	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
Mannheim	Bavaria	167,054	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Münster	Prussia	27,773	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
Münster	Prussia	27,773	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Nürnberg	Bavaria	70,492	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
Nürnberg	Bavaria	70,492	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
Potsdam	Prussia	42,266	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Potsdam	Prussia	42,266	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
Prague	Austria	142,588	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
Rostock	Mecklenburg	26,396	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Stettin	Prussia	70,899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Stuttgart	Württemberg	69,084	.....	.....	.....	3	37	961	.....	.....	.....	.....	.....	.....	.....	.....	1
Trieste	Austria	104,707	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Vienna	do	514,037	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28
Vienna	do	514,037	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
Wiesbaden	Nassau	26,177	1	17	474	1	13	315	1	12	100	1	17	305	.....	.....	9



DOCUMENTS ILLUSTRATIVE OF EDUCATION IN GERMANY.

GENERAL REGULATIONS OF ELEMENTARY SCHOOLS AND TEACHERS.

August 12, 1763.

We FREDERIC, by the grace of God, King, &c.:

WHEREAS, to our great displeasure, we have perceived that schools and the instruction of youth in the country have come to be greatly neglected, and that by the inexperience of many sacristans (*custos**) and schoolmasters, the young people grow up in stupidity and ignorance, it is our well considered and serious pleasure, that instruction in the country, throughout all our provinces, should be placed on a better footing, and be better organized than heretofore. For, as we earnestly strive for the true welfare of our country, and of all classes of people; now that quiet and general peace have been restored, we find it necessary and wholesome to have a good foundation laid in the schools by a rational and Christian education of the young for the fear of God and other useful ends. Therefore, by the power of our own highest motive, of our care and paternal disposition for the best good of all our subjects, we command hereby, all governors, consistories and other collegiates of our country; that they shall, on their part, contribute all they can, with affection and zeal, to maintain the following GENERAL SCHOOL REGULATIONS, and in future to arrange all things in accordance with the law to the end that ignorance, so injurious and unbecoming to Christianity, may be prevented and lessened, and the coming time may train and educate in the schools more enlightened and virtuous subjects.

SECTION 1. First, it is our pleasure that all our subjects, parents, guardians or masters, whose duty it is to educate the young, shall send their children to school, and those confided to their care, boys and girls, if not sooner, certainly when they reach the age of five years; and shall continue regularly to do so, and require them to go to school until they are thirteen or fourteen years old, and know not only what is necessary of Christianity, fluent reading and writing, but can give answer in everything which they learn from the school books, prescribed and approved by our consistory.

§ 2. Masters to whom children in Prussia, by custom are bound to render work for certain years, are seriously advised not to withdraw such children from school until they can read well, and have laid a good foundation in Christian knowledge; also made a beginning in writing, and can present a certificate from the minister and school master to this effect to the school-visitors. Parents and guardians ought much more to consider it their bounden duty that their children and wards receive sufficient instruction in the necessary branches.

§ 3. If children, by their own aptitude or by the care of the teacher are sufficiently advanced in the common studies before they attain their thirteenth or fourteenth year, even then the parents or guardians are not at liberty to retain them at home, but can do so only when the superintendents or inspectors, after a notice from the minister and a testimonial of the schoolmaster, that the pupil has acquired a sufficient knowledge, have issued a regular dismissal based on the above testimonial. Still such children must attend the Repetition School, not only on Sundays, at the minister's, but also on week-days at the schoolmaster's.

§ 4. As in many towns, parents do not send their children to school in summer, on the plea that they have to guard the cattle; our magistrates and judges in the districts containing towns and communes, shall see that a special shepherd is engaged, rather than allow the children to be kept from school. Whereas, as in

* *Nora.*—*Custos*, or German "*Küster*," is the name by which the sacristan or custodian of the Church was designated; from among these persons many were taken as teachers, or rather the first teachers combined the office of custodian with their duties in the school. Hence, the name attached to old teachers before the enactment of the School Laws.

our Westphalia counties, in the Wisser-land, in the old Margraviate and other parts, the houses are scattered far apart, and the cattle cannot well be driven into one place to be guarded, one child after the other, if there are several in a family or neighborhood, shall alternately, every day, attend to the herds; or the innkeepers and inhabitants of such towns shall make other arrangements by which each child can go to school at least three days of the week, that it may not forget in summer what it learned in winter. In many cases it could be organized that the children form two divisions, one of which could be in school during the three first days of a week, and the other during the three last days.

§ 5. In order to regulate definitely the summer and winter schools, we decree that winter schools must be held on all the six days of the week, from 8 to 11 o'clock in the forenoon, and from 1 to 4 o'clock in the afternoon, except Wednesday and Saturday afternoons. The winter school must be continued from Michaelmas to the Easter-days. But the summer schools shall be open only in the forenoon or, if necessary by the location of the place, during three hours every week-day, when the ministers can best decide at what hour to commence. No vacations are to be given, not even during harvest time; the schools shall be kept in the prescribed manner, with this distinction, that in summer each lesson is to be of half an hour's duration, and in winter of a full hour.

And since it has not remained unknown to us, that in many places the magistrates and patrons of nobility have taken great pains that schools might be kept winter and summer in the fore and afternoon, we will, by this decree, not at all abolish an arrangement so praiseworthy, but allow the example of Christian care for the interests of the children, to serve as an example to others.

§ 6. On Sundays, beside the lesson of the catechism or repetition school by the minister given in the Church, the schoolmaster shall give in the school a recapitulatory lesson to the unmarried people of the township. They shall there practise reading and writing. Reading should be from the New Testament or some other edifying book, and as an exercise in writing, the young people should write some passages, or the epistle, or Gospel of the day. In towns where the schoolmaster is not likewise sexton, and not obliged to travel through the parish with the clergyman, he shall be bound to sing with the children in Church, either morning or afternoons, to hear them recite the catechism and address to them easy questions on the order of salvation. If a sacristan or schoolmaster has no experience in catechising, the minister should write down for him the questions he must ask, that in this manner, together with their children, the people may be edified and improved in scriptural knowledge.

§ 7. In regard to tuition fee, every child, until it can read, shall pay in winter six pennies, after it can read, nine pennies, and when it can write and read, one groschen a week. For the months of summer, however, they shall pay only two-thirds of this fee, so that those who paid six pennies in winter, after his proportion shall pay four; those who paid nine pennies shall pay six, and those who paid one groschen will pay eight pennies. If, in any place the schoolmaster has been paid better, he must continue to receive the customary fees.

§ 8. Parents too poor to pay the tuition fee for their children, and orphan children who cannot pay, must petition the magistrate, patron, minister or church-council for an allowance from any funds of the church or town at their disposal, that the schoolmaster may get his income, and teach the children of the poor and rich with equal diligence and fidelity.

§ 9. In furtherance of this object, there shall be delivered in every town of the country and in the cities, on St. Michael's Sunday of every year, a school discourse, in which a topic, chosen with discretion, from the subjects of christian education and edification of youth, in harmony with the Gospel of the day, or based on another suitable text from the Old or New Testament, shall be expounded to the people. After this discourse, and an earnest exhortation from the minister, a collection will be taken in aid of country schools, and especially for the purchase of school-books for the poor children in village schools; and in the manner customary to the place; they shall also collect voluntary contributions, which, together with the regular quarterly collections, shall be forwarded to the consistory of the province to be applied to the purchase of books.

§ 10. Having made good and sufficient provision for the instruction of the young, all parents, guardians, and others, having children to educate, who act contrary to this ordinance, by withholding them from school, shall still be

obliged to pay the common school-fee for the term; and guardians shall not be permitted to charge the money thus paid to the account of their wards. And if, after earnest exhortation of the minister, they do not send their children regularly to school, then the magistrate of the town, in the last resort, shall direct execution against them. It is made the duty of the school-visitors to impose on such parents as have not made their children attend school regularly, a fine of sixteen groschen, to be paid into the school-treasury.

We therefore command all officers and magistrates to ascertain without delay, after receiving notice from the schoolmaster, of the non-attendance of any child, from the parent or guardian of the same the cause of such absence, and if it is for other reason than sickness, they shall employ proper legal means to secure that child's attendance.

§ 11. To this end, and to enable him the better to control the matter, the schoolmaster shall receive, from the register of the church or the town in which they are engaged, a list of all children of school age, that they may know who are due to the school; and the teacher shall also keep a monthly register, in which the children are enrolled as follows: (1) By their name and surname; (2) their age; (3) the names of their parents; (4) their residence; (5) the date when they enter school; (6) the lessons they study; (7) the degree of their diligence or negligence; (8) their abilities of mind; (9) their morals and conduct; (10) the day when they leave school.

This register, which no child should be suffered to read, is sent to the school-visitor before his annual inspection, and inspected by the minister during his weekly visits that he may know the delinquent children, and exhort them to greater diligence, and speak with their parents in this regard.

This register is ruled with lines for every day of the month, on which the teacher can enter his remarks, and check those who are absent with or without permission or excuse. This will incite children to diligence, and remind parents, who send their children irregularly and say, "our children have gone so many years to school, and yet learned nothing," that the fault is not with the school or the teacher, but with themselves.

§ 12. Since the chief requisite in a good school is a competent and faithful teacher, it is our gracious and earnest will, that one and all, who have the right of appointment, shall take heed to bring only well qualified persons into office as teachers and sacristans. A schoolmaster should not only possess the necessary attainments and skill in instruction, but should be an example to the children, and not tear down by his daily life what he builds up by his teaching. He should therefore strive after godliness, and guard against everything which might give offence or temptation to parents or children. Above all things, he should endeavor to obtain a correct knowledge of God and of Christ, thereby laying a foundation to honest life and true christianity, and feeling that they are entrusted with their office from God, as followers of the Saviour, and in it have an opportunity, by diligence and good example, not only to render the children happy in the present life, but also to prepare them for eternal blessedness.

§ 13. Though we intend to leave undiminished the privileges of the nobility and other patrons to select and appoint their sacristans and teachers, yet our superintendents, inspectors and the clergy must see that no incompetent, unsuitable, nor reckless and wicked person is employed or continued in office. Especially should those be removed who are addicted to drink or theft, who excite dissensions in the commune, or give scandal. If they are addicted to such vices before their engagement they are unfit for the office; and the patrons should be required to present another person, of good repute, to the examiners. But if these vices crop out after they are in office, it must not only be noted on the annual report of conduct, but be directly communicated to our consistory, that they may be saved further vexation, and the incumbent be suspended without delay and brought to trial before the proper tribunal. All teachers are forbidden to keep tavern, to sell beer or wine, to engage in any other occupation by which their labor may be hindered or the children lured by their example into habits of idleness and dissipation, such as the hanging round taverns or making music at dinners and balls, which is prohibited under high fine and punishment.

§ 14. No sacristan or teacher can be installed into office before his qualifications, ascertained by actual examination, are certified to by the Inspector. No clergyman can admit any person to such position in church or school who does not produce said certificate of a successful examination.

With regard to our country schools in towns and villages on our own domains, we repeat our former directions, that no person shall be engaged as custos of school teacher unless he has been a member of the Teachers' Seminary at Berlin, and understands the cultivation of silk, as well as the excellent method of instruction pursued in the German schools of Trinity Church. And those teachers who have received from Chief Counsellor and Pastor Hecker a certificate of qualification, may be elected to a vacancy after giving a trial lesson in singing in the church and in teaching the children in school in presence of the inspector, or of the clergyman and some citizens of the town. Whenever a vacancy occurs, the clergyman must give notice to the inspector, mentioning the specific salary and circumstances of the position, who reports to the chief consistory, waiting for the presentation of a candidate from the Teachers' Seminary; if none such is presented, then, with the assistance of the clergyman, he must find a proper person and send him to Berlin for examination and trial lessons. Should he not be found qualified, he may be permitted to attend the seminary at his own expense, until he has obtained the certificate of qualification; and failing that, another candidate must be proposed.

§ 15. No person shall assume to teach in any school of the country, village, or town, who has not regularly obtained a license to teach; and all schools, whether kept by man or woman, not duly authorized, are entirely prohibited. But parents of wealth may, as heretofore, engage private teachers for their children, provided that the children of others who cannot yet be taught the higher branches, are not induced to withdraw from the regular school in order to share the private elementary instruction.

§ 16. As a schoolmaster is not permitted to employ his pupils for his own work during school hours, neither shall he attend to his trade or other business during such hours, or entrust his wife with the duties of the school-room; though he may employ her or another person to assist when the school is too large for his personal instruction. If for any cause he neglects to teach the prescribed hours, the clergyman shall remind him of his duty; and, in case of persistent neglect, notice must be sent to the inspector that such irregularities may be corrected or punished.

§ 17. The daily work of the school should begin with prayer to the Giver of all good gifts, that He will send His divine blessing on their work, and give them a heart full of tenderness and sincerity towards the children entrusted to their care, that they may do willingly and without passion all that is incumbent upon them as teachers; being always reminded that they can have no influence over children, nor win their hearts without the divine assistance of Jesus, the friend of children, and of His holy spirit. During the instructions they should devoutly pray that they may not only keep their minds composed, but that God will bless their work, and to planting and watering graciously give His increase.

Teachers should also devise various means to win the confidence of young pupils, especially of the bashful and slow, and to render their task easy. To this end, they should make themselves familiar with the third part of the "*Berlin School-book*," by which all the elementary branches are successfully taught.

§ 18. As much depends on a good plan of organization, it is ordered that three hours in the forenoon (from 8 to 11) and three in the afternoon (from 1 to 4 o'clock) shall be the school time, unless the minister and town council find it more suitable to begin earlier or close later in the day, provided six hours each day in summer and winter are devoted to instruction.

§ 19. The order of school shall be thus:

In the first hour of the morning they will—

First. Sing a hymn, the words being slowly pronounced by the schoolmaster, and sung by the children after him. Every month, but one hymn, designated by the clergyman, and not too long or unfamiliar, shall be learned and sung, in order that the old and young may remember the words and tune by frequent repetition. While singing, the teacher must see that all participate, and no child should be permitted to hold open the hymnbook and sing from it, but all should be required to follow him.

Second. After the hymn, a prayer shall be offered, either by the master, or one of the pupils may be allowed to read slowly and distinctly a prescribed prayer, while the rest join in silence. Then all should directly offer up a common prayer, learned by heart; and after the reading of the psalm for the month by one of the

pupils, the devotional exercise should close with the Lord's prayer. Any tardy children must wait at the door until prayer is ended, in order not to disturb the others.

Third. After prayer such a portion of the catechism is explained that in every six weeks the book is gone through. In this exercise the following method should be adopted: The portion to be interpreted must be read by the children until it is familiar to most of them. Then the words and their meaning are explained, by questions and answers, and verified by passages from the Scriptures; and finally the children should be told how to apply the truth of what they hear to practical life. For little children Luther's smaller catechism should be used; for the more advanced the clergyman and schoolmaster should use the larger catechism with interpretations.

During the remaining hours of the morning, exercises in reading, spelling, and the A B C should follow according to the proficiency of the pupils.

(1.) In the first half hour the advanced pupils read a chapter from the Old or New Testament, sometimes together, sometimes a certain portion of the class, alternating with a single pupil, as the teacher may designate to keep the order and attention of all alive.

(2.) The next half hour is devoted to spelling, either by the entire class in concert or each child alone. Sometimes a word is written on the "tafel," (*black-board*), which all are required to spell and pronounce. During this lesson with the younger pupils the older are practised in finding passages of Scripture or hymns in the hymnbook; or they commit to memory verses and the names of Biblical books in their succession, that they may become ready in consulting the Scriptures.

(3.) The next hour is devoted to the A B C classes, with copying on their tablets one or two letters from the larger tablet, the teacher often calling them to name the letters, or show them on their slates, while he is hearing an advanced class spell, or attending to their writing, which last is in this wise:

(1.) The larger children write during the first half of the third hour, when their work is inspected and corrected in the next half hour. That no child may be neglected, the teacher keeps a list of the scholars, who present their copy-books in succession, and he continues the next day where he left off. In this manner every child will have his book returned and corrected several times each week.

Here it should be remarked, that the left side of the copy-book should be written and corrected first, and the scholar should re-write the same exercise on the right-hand page, free of the errors pointed out by the teacher.

(2.) While the larger pupils are writing, the spelling class is to be exercised and made familiar with the rules of reading, and the powers of letters. While the larger scholars have their copies corrected, the spelling class may now and then recite their Bible-verse for the week. Towards the end of the third morning-hour, the whole school is called to prayer, after which the teacher reads the psalm or part of the hymn designated for the season, and then the pupils are quietly dismissed. The master looks to their behavior in going home, that carelessness and wickedness may not dissipate the instructions of the morning.

During the first hour of the afternoon the whole school is occupied with the teacher, and after singing some verses and reading a psalm, they are taught biblical history and the "Manual for the instruction of children in country-schools."*

The second hour of the afternoon, the classes alternately learn portions of the catechism. This may be done after the method shown in the third part of the Berlin Reader, by writing down the first letters, or in the following manner:

(1.) The teacher reads repeatedly, slowly and distinctly, the portion which the children are to commit, while the pupils follow in the open book mentally. Then the children read the exercises in concert, while the middle and spelling class listen.

(2.) After this is done, the teacher reads aloud from comma to comma, while the children repeat until they know it by heart; then he proceeds with the next paragraph in the same manner, explaining the Bible phraseology of the catechism, which the children learn together. As regards the interpretation of Luther's

* See Memoir of Frederica Eberhard von Rochow.

catechism, the larger children will learn that by frequent repetition; the middle class, and the small pupils meanwhile listening attentively. After the first class has in concert repeated the lesson a few times, the teacher indicates the individuals to recite the lesson from memory, and thus he satisfies himself as to their mastery of it.

(3.) Finally each class recites its weekly Bible-verse, varying in length according to the age of the pupils. In this manner children generally learn the portions of the catechism and Christian Doctrine in their proper connection, together with their Bible-verses, a psalm and a hymn every month.

The next half hour, the larger children attend to reading, the middle class to spelling, and the lower class to their letters, as in the morning.

During the third and last hour of the afternoon, the first class shall write and cypher; while the middle class continue their spelling, and the little children their A, B, C.

On Saturday, instead of the catechism in the first hour of the morning, the children will repeat the Bible-verses, psalms and hymns they have learned, of which the teacher keeps a memorandum. Then, from week to week, he relates to them a history from the Old or New Testament, explains the same and shows its application to life and conduct. For the older children he may use the Biblical chart, to aid them in more perfectly understanding the Holy Scriptures. After this they shall read the gospel or the epistle for the next Sunday. Next they write on their slate, of which the teacher corrects the orthography. At the conclusion of the school, the children shall be earnestly exhorted to behave well on Sunday; to be quiet and devotional at church; to listen and treasure up the word of God for their salvation.

The schoolmaster, during all the hours above designated, must be constantly with the children, and never be absent from school one hour, much less one day, without the knowledge of the pastor and the permission of his superiors, in which case he must in time provide another person to teach the school, that the young may not be neglected.

In large cities, and villages, where there is more than one class-room, it shall be reported by the inspectors and clergymen to our provincial consistory, which will regulate the order of lessons and method of instruction according to the conditions of the place.

§ 20. As the country has hitherto been deluged with all sorts of school-books, especially with interpretations of the catechism, and so-called "orders of salvation," because every preacher selects the books after his own pleasure, or writes some himself and has them printed, by which children, especially if the parents change their residence, are much confused, it is our will, that henceforth no other books, than such as have been approved by our consistory, shall be used in any country-schools over which we have the right of patron. These books include, according to the wants of the country, the New Testament, the book called "Exercise in Prayer," in which not only are the contents of each book in the Bible, but the main subject of each chapter is framed into a prayer, to assist the young in expressing their invocations in the words of divine truths. Also the Halle or Berlin Bible, both of which agree in their divisions into paragraphs and pages; next the small and large Catechism of Luther; the Index of the books of the Bible; the Christian Doctrines in their connection; the Berlin Spelling-book and Reader; the General Attributes of God, of the world and man; and the Little Book for children in the country, on all sorts of necessary and useful things.

§ 21. Each class must not only have the same books, but the clergyman and teacher must see that every child has his own book, so that two pupils need not look over the same book. Children, whose books are furnished from the funds or the church or the commune, are not allowed to take them home, but will deliver them to the master, at the close of the lessons, who will take charge of them as the property of the school.

§ 22. Discipline should be administered with discretion, and the sin and vices of selfishness, obstinacy, lying, calling bad names, disobedience, wrath, the habit of quarrelling and fighting must be rebuked, corrected and punished, yet always with discretion and after previous inquiry into the circumstances or each act. In punishing the young the teacher must abstain from all unbecoming passion, harsh language, and exhibit a paternal calmness and moderation, so that

children may not be spoiled by excessive tenderness, or made timid by excessive severity. When, from the enormity of the offence, or for example, it becomes necessary to punish severely, the teacher shall first consult the clergyman, who shall thoroughly investigate the case, advise impartially, so that parents shall not interfere in the affairs of the school.

§ 23. Before church service on Sundays and holidays, the parents shall be required to send their children to the schoolmaster, that they may walk to church in proper order and be under good supervision while there. He must take them quietly and orderly out of church, after the service; and while in church must occupy a special seat, near the children, that he may note down the absent, and have an eye on those present, that they behave modestly, and join in singing with becoming devotion, without whispering or playing during the sermon, respecting which they should be interrogated on the following day. It is also the duty of the schoolmaster to watch the conduct of the boys who assist at funerals, that they walk reverently two and two, while those who can, join in singing the funeral hymns; and on all public occasions, they should behave modestly, and be courteous in their manners, words and actions.

§ 24. In all other affairs of the school, the teacher must avail himself of the advice and suggestions of the clergyman, as his superior officer, and by his school-regulation the teachers are so directed. Of all that regards their office they must, on demand, give an account, and accept directions in reference to the prescribed method and discipline, because we have confidence in our ministers and bind it on their consciences that in their towns they will earnestly endeavor to abolish all abuses and defects, and improve the condition of the schools. In case however one or the other of the schoolmasters should neglect the duties of his office, after he is engaged, and be found unreliable, the pastor's duty will be, earnestly to remind him of his duty, with kindness once or twice, and if he still continues in his negligence, to apply for a remedy to the nearest justice: at the same time to inform the Superintendent or Inspector, and if their warning is not heeded, make a report to the consistory, that, according to the circumstances, they may decree a suspension or removal.

§ 25. Especially is it our pleasure, that clergymen in villages and towns shall visit the schools of their place, generally twice a week, sometimes in the morning and sometimes in the afternoon, and shall not only take the information of the sacristans or schoolmaster, but themselves examine the children in the catechism and question them after other schoolbooks. They shall hold a monthly conference with the schoolteachers *in matre*, and designate to them the portion of the catechism, the hymn, the psalm and Bible-verses which the children shall learn during the next month. Then he instructs them how to observe the principal divisions of the sermon and how to examine the children; he also points out the defects in their instruction in school, their method, discipline, and gives them other information, that the schoolteachers may fulfil their duties. If a clergyman, against our expectation, should be careless in his visits to the schools, or in the performance of the other duties enjoined upon him in these regulations, and not labor earnestly to effect an exact observance of this law on the part of custos and teachers, he shall if convicted of the non-fulfilment of these instructions, be suspended *cum effectu*, for a time, or, as the case may be, removed from office: because the care for the instruction of the young and the supervision thereof, belong to the most important duties of the ministry, as we always desire them to be considered.

§ 26. The Superintendents and Inspectors of every district are hereby commanded, in the most expressive manner, annually to inspect every country-school in their jurisdiction, and with due attention to inquire into the condition of the schools, and examine whether parents and school authorities have held their children to regular attendance at school or have been negligent; whether the clergymen have done their duty in the observance of these regulations, by visiting the schools and superintending the teacher; especially whether the schoolmaster has the ability required or is not competent, and whatever else is in need of improvement. About all this the said Superintendents and Inspectors shall remit a dutiful report, every year, to our High Consistory in this city, for further examination and disposition. We command that this be done without fail, not only in regard to public schools in the country, in villages or cities, but also

where the nobility have the *Jus Patronatus*, that incompetent schoolmasters may be known to the consistory and they take measures to diminish ignorance and immorality among the young. At the same time those children, who have made good progress in school, shall be introduced to the school-visitors at the examination, and afterwards be admitted to the weekly instruction in the catechism at the house of the pastor, where they shall be made thoroughly acquainted with Christianity.

In general we here confirm and renew all wholesome laws, published in former times, especially, that no clergyman shall admit to confirmation and the sacrament, any children not of his commune, nor those unable to read, or who are ignorant of the fundamental principles of evangelical religion.

REGULATIONS FOR CATHOLIC SCHOOLS IN SILESIA.

NOVEMBER 3, 1763.

We, FREDERIC, by the grace of God, King of Prussia, &c.,

Make known hereby that, as in our paternal care for the welfare of our faithful subjects, we were led to issue the order of August 12, 1763, for the better organization of the ill-managed country schools, we have thought proper to proclaim a similar order in regard to our Roman Catholic subjects of Silesia and the county of Glatz, for the organization of the common elementary schools in towns and villages. That we may make our Roman Catholic subjects more useful citizens, we hereby ordain :

1. To strike at the source of all poor instruction, no schoolmaster, or by whatever name teachers in cities and villages may be designated, shall be anywhere engaged if he cannot prove, in the manner described below, that, with skill in singing and playing the organ sufficient to perform the services in the Church, he has acquired the art of instructing the young in the German language, after the manner approved by Catholic school authorities.

2. And that every one who desires to be employed in schools may have the opportunity for learning all that is needed by a good teacher, we have thought it best to establish here and there certain schools, in which not only the young will have the best instruction, but where adults, also, may be taught how to teach and manage youth. For this purpose we have selected the following schools : for Lower Silesia, the school of the Breslau Cathedral *ad St. Joannem*, the school of the second Cistercians at the convents of Leubus, Grussau, and the Augustines of Sagan ; for upper Silesia, the school in the city of Ratibor and of the Cistercians at the convent of Rauden ; and for the county of Glatz, the school of the city of Habelschwerdt.

3. We command that the above-named schools, which are to serve as seminaries for future teachers, shall not only be constantly provided with skillful teachers, but each shall also have a well-informed director, who shall devote himself to maintaining and improving the condition of his school, and especially to training and instructing those who are preparing to teach. The director must observe the following :

4. He should aim at having everything in his school taught and learned thoroughly, and in reference to the needs of common life, which will be further described below. He should show the teachers how to give their pupils the reasons for everything, that they may obtain an understanding thereof, and become themselves able, on being questioned, to give these reasons. His object should not be to load the memory of the pupil, but to enlighten and train his mind.

5. And, since the method in which the first teachers of the above-named schools were instructed is such that, by retaining it, all those advantages may be reached, it is our will that it should be introduced everywhere, especially the essential part of the method of letters, tables, questions, and answers, as well as the books written for this purpose.

6. The directors should not omit to employ such other advantages as they or others may discover in connection with this popular mode of teaching ; and to this end they should correspond among themselves, and read the best works on schools and education. That such writings may become known to them, we commend the publisher of the privileged Breslau literary periodical to notice and criticise such books and treatises as are new or reprinted.

7. With regard to those who frequent these schools in order to become skillful teachers, the directors must not only select the best teachers, but also require them,

where the nobility have the *Jus Patronatus*, that incompetent schoolmasters may be known to the consistory and they take measures to diminish ignorance and immorality among the young. At the same time those children, who have made good progress in school, shall be introduced to the school-visitors at the examination, and afterwards be admitted to the weekly instruction in the catechism at the house of the pastor, where they shall be made thoroughly acquainted with Christianity.

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4. He should aim at having everything in his school taught and learned thoroughly, and in reference to the needs of common life, which will be further described below. He should show the teachers how to give their pupils the reasons for everything, that they may obtain an understanding thereof, and become themselves able, on being questioned, to give these reasons. His object should not be to load the memory of the pupil, but to enlighten and train his mind.

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7. With regard to those who frequent such schools in order to become skillful teachers, the directors must not only observe the above, but also require them,

after their lessons in matters pertaining to schools, and the use of school books and tables, to be present when the regular teachers instruct the children. They must also, as soon as they are capable, be required to teach certain classes under the eye of the teachers, that the latter may correct them when they do not proceed in a right manner. The director and teachers of the seminary should take pains to point out all such helps as will facilitate and lessen the labors of the teacher, without injury to thoroughness of instruction, and without employing any means that would cause aversion on the part of the pupil. The director should make the *præparandi* acquainted with all the duties of their future profession, and inspire them with a delight in fulfilling them. Especially should he impress them with the importance of their office, and how much depends upon it, as good or evil instruction tends to form useful or bad subjects of the State.

8. He should diligently inquire as to what progress the *præparandi* have made, and how far they have acquired a knowledge of teaching; especially at the time when they are about to leave he should have an eye on their morals and conduct, endeavor to improve them, and remark on their deportment in the certificates to be given them.

9. Such certificate the candidate shall present at the vicar's office in Breslau, or to the deacon in Glatz, or to the vicars in other dioceses; or, if not trained in the principal seminary at Breslau, or in that of Glatz, he shall present it first to the director of the Cathedral school, and then to the director of the seminary, that he may be examined by them, to discover if he actually possesses the skill which the testimonial ascribes to him. If he does not give satisfactory evidence of this, or fails to acquire a better preparation in the seminaries at the Cathedral of Breslau, or in that in the district of Glatz, his certificate shall be of no avail.

10. All candidates of theology shall acquire in the principal seminary at Breslau that knowledge of teaching necessary in order to exercise a proper superintendence over schools, in conformity with these regulations. The director will give them such instruction and note their progress in a certificate, by which the students may satisfy their directing minister in Silesia that they have learned the method, whenever they request permission to take orders, or ask for an ecclesiastical benefice.

11. As to school teachers who apply for position in those parts of the State where the Polish language is spoken, the directors of the seminaries in Upper and Lower Silesia should examine the candidates as to their knowledge of German; whether they are able to teach that language to the children; and if not, they must learn it before they will be permitted to take charge of a school. They must also understand the Polish language sufficiently to use the school books in both languages which have been prepared for the schools of Upper Silesia.

12. Since we have thus made ample provision for school teachers to become skilled in the administration of their office, it is our will, also, that the places where no teachers are to be procured shall henceforth not be without them. In towns which have no teachers, and are farther than a quarter of a mile from the nearest school, it would be impracticable to send children to school in winter. Therefore, wherever hitherto towns have depended upon a school at a distance of one half or three quarters of a mile, we command our Council of War and Domains to determine, through the administrator of the district, who, to this end, shall take the advice of the highest clergy in the district where teachers should be located, how much the State and the commune must contribute to his support, and what measures are necessary to erect school-houses.

13. It is well known how much children are hindered in their studies and become distracted when, in the room in which the school is kept, the wife and children and frequently even the relatives of the schoolmaster, work at their trade or domestic duties. In order to remove this evil, the school room must be separated from the living room, in all new school-houses erected in cities and villages, and shall be convenient, well lighted, and large enough to accommodate all the children. In cities where schools have several teachers, a separate room must be constructed for every teacher, which shall not be used for any other than school purposes. These schools are to be erected at the expense of the commune, if it is mainly Catholic, with concurrence of the proprietors, without distinction of religion; because it is important to masters of every denomination that sub-

ordinates be made useful through the training of the school; and all necessary furniture, blackboards, inkstands, and books for children of destitute parents they shall furnish also.

14. In places where the salary of a teacher is so small that he cannot subsist on it, our Council of War and Domains shall see that the proprietors and Catholic subjects raise a sufficient support for him and pay it promptly. In places where the number of Catholic inhabitants is very small, and consequently a living salary for the teacher cannot be made up without oppressing the people, we will permit the teacher to practice a trade for his better subsistence, like that of a tailor or stocking weaver; but he shall not be permitted to work in the school room or during school hours. Any traffic in beer or liquor, or attendance at fairs with music, shall not be included in the lawful trades of a teacher. Experience shows that the first distracts a teacher and entices him from his duties; and by music and taverns the best schoolmasters are ruined, and reduced to drinking and idleness.

15. Therefore all teachers are forbidden to keep a tavern, or to wait on weddings and other occasions; and we permit them to labor in any trade that will be no hindrance to the work of teaching.

16. With the same intent, of guarding schools against interruptions, we release teachers from the customary duty of carrying the messages from the archbishop to the neighboring clergy, and we command that such should be done in future by other messengers from the commune, since these messages generally concern our war orders.

17. The instructions published at the beginning of this year by our Department of War and Domain in Breslau for school teachers in villages, which define the hours of school and all that belongs to it, must be observed by all teachers. We here refer to it, and command that these instructions be followed in every particular.

18. In regard to primary schools in cities, for which no regulations have yet been issued, we ordain the following: First, there shall be no difference between winter or summer, as far as the schools are concerned; because, in cities, the causes which prevent country people from sending their children to school do not generally exist. Therefore the schools must be open throughout the year from eight to eleven in the morning, and from one to three in the afternoon.

19. As schools in large cities have frequently two or three teachers, we ordain that one of them—he who writes the best hand—shall teach the smaller children in the first elements; the others the more advanced pupils.

20. Instruction to beginners includes: 1st, the letters, spelling, and simple reading. The letters must be learned in a month; and since, in cities, new children are coming in every month, the course is to be repeated. Every month the children should spell the six different classes of syllables in the spelling book; in the third month the children, who began with the letters the first month, should commence to read, but the difficult words must still be spelled and the rules be inquired into. Every month they must go over the tables belonging to the subject, as they are found in the school books for children. 2d, in writing, the teacher should first acquaint the pupils with the rules of penmanship after the printed instructions, and they should then practise them until they have a correct German current handwriting, and can also write Latin letters according to the rules contained in the above instructions. He should go over the tables of calligraphy every month, taking the general principles during the first two weeks and the current letters; in the third week, the Latin and current handwriting; and in the fourth week whatever is necessary to write words and sentences. In correcting, he should not omit to point at the tables, and proceed after the instructions printed on the same. 3d, in arithmetic he must likewise proceed after the tables on the five simple operations prepared for the Silesian schools; also in the rule of three with simple numbers, and he must endeavor to bring the children to do quick cyphering. During the first month he is to finish the table of enumeration, and the children should know how to pronounce and write any given number of not above eight or nine figures. Addition and multiplication should be completed in two months, and the remaining three months of the semi-annual term given to subtraction and division and recapitulating the other operations.

21. The children thus prepared are to be further instructed by the second teacher. When they are able to read the larger tables with fluency, they should be taught how to pronounce correctly the French words which occur frequently in German papers. In writing, the teacher should show them the law style and *fractura*, and the current letters which they learned from the first teacher need not conform to his own handwriting, and he need not make copies for them, but should cause them to copy select portions from books or other useful matters, he seeing that all they write is in agreement with the rules given in the tables of calligraphy. He should instruct them in orthography, not only by copying, but by dictating to them from time to time, in order that the pupils acquire a fluency in writing, and also to see how far they apply the rules of orthography. He should teach the older scholars to write compositions of various kinds, especially letters and forms which occur most frequently in common life. He should observe the mistakes in the use of language, in the modifications or combinations of words, for which purpose he should use Gottsched's grammar. In arithmetic the pupils should learn the four operations in simple numbers and with fractions, the rule of three in all its applications, and the Italian practice, if any desire it. Oftentimes, especially to those who are about to leave the school and gain a living by the pen, the teacher should give them various bills and accounts, and show them how to draw these up correctly, and what must be done in revising accounts.

22. If, as in almost all large cities, the school has a third teacher, he should instruct in the first elements of the French and Latin languages, in general and special history, in understanding and using a map, in studying geography from tables printed for this purpose, and in finding places on the map by means of the *Lexicorum*. We shall also, in order to give the young an idea of those things which render a State prosperous and the subjects contented, cause to be published a short text-book, containing the most useful knowledge of physics and some preliminary knowledge of the objects which are of importance in arts, trades, and manufactures. The duty of making the contents of such a book known to youth belongs, also, in larger cities, to the third teacher.

Though these are the branches taught by the second and third teacher, as named above and more in detail in Appendix A, yet it has not been defined, as was done in the duties of the lowest teacher, how much each shall accomplish in a fixed time. Since this, as well as what each shall teach, depends on the condition of the place and the skill of the teachers, we will leave it to be determined by the clergyman of the place, with the approbation of his school inspector, who may also, for instruction in music, select a teacher whom they consider best adapted. But a programme should describe what, by whom, and at which hour this or that is to be taught, and when to review a subject again, in order to stimulate the teacher to advance the young, and to give children who commence their studies an opportunity to learn all by a set time from the beginning and thoroughly.

23. That there may be no want of persons skilled in teaching, the directors of seminaries must endeavor gradually to train the best scholars for these duties; and in changing teachers, try to engage persons who understand these branches, and are able to teach them.

24. At the end of this we have added sub. A, a table in which the time is exactly given when to pursue each lesson above named, and also as to how to proceed in cities where there are two teachers only, that the children may learn a little more than reading, writing, and cyphering. We have therefore caused to be added, from the instructions already given for the organization of village schools, sub. B, the order of time, which is to be punctually observed by the schoolmaster of the Roman Catholic faith in our duchy of Silesia and the sovereign county of Glatz.

25. All these regulations, intended for the welfare of our faithful subjects, will create but little effect if, as has been the case heretofore, the schools are empty, where it is left to the will of the parents to send their children to school or not. We ordain, therefore, by this present, that all children in cities and villages, without distinction, whether the parents are able to pay for tuition or not, shall be sent to school as soon as they complete their sixth year, and shall attend the same until they are thirteen years old.

26. Parents and guardians who retain their children at home against this order shall, unless notoriously known as unable, pay double the tuition fee to the school teacher; the guardians from their own means, without any right of charging it to their wards' account; this to be levied by the justice of the court of the district; and the poor, who cannot pay this forfeiture, shall be compelled to two days' work for the commune, without pay, for every week they neglect to send their children to school. Children of less than eight years must attend school in summer and winter; in summer only in the forenoon.

27. As regards older children, whom the parents need for guarding the cattle and for other farm work, we permit that such, because the young now learn faster and more thoroughly by the new method introduced, be free from school from St. George's day to St. Martin's.

28. They shall be required, however, during this time, to attend the instructions in Christianity every Sunday afternoon, and after that to participate for two hours in the lessons in reading and writing given in school; which lessons the teachers shall give under direction of the pastor, that they may become useful to the young. Those, also, who have left school, and are not yet twenty years of age, must attend these lessons, though they may be in service on a domain or with a farmer, for their employers are bound to send them to school at such time, that they may recapitulate what they learned before, and prevent the utter lack of necessary knowledge. The schoolmaster shall keep a list of all persons who attend this repetition school, note their presence and absence, and inform the pastor of the latter. Such list is to be made after formula F, and the teacher shall present it, together with his semi-annual report, to the clergyman, who again transmits the same to the bishop and to the school inspector, whose duty it is to report the number of those who have attended and who have absented themselves from the repetition school.

29. The best means of bringing all children into school is the keeping of an exact list. The schoolmasters in the country shall be obliged to make such a list from the records of baptism, after the form published with the former instructions, and to this end should make careful inquiries about the children brought in from other towns. This cannot be difficult, and thus they can keep a complete register of all the children of school age.

30. There may be more difficulties in cities, on account of the many new comers from other places, and we therefore command that every owner of a house, fifteen days before St. Michael's and fifteen days before St. George's day, make a written return to the magistrate of the place, giving the number of his house, the names and ages of the children, together with the name and occupation of the parents, and the magistrate shall transmit the same to the clergyman for the completion of the school register.

31. Inhabitants of cities, who have the means, are still at liberty to engage family tutors for their children, but these tutors are not permitted to teach children of other families than those of the house in which they are engaged, in order not to diminish the number at the common city school. In general, all irregular schools are suppressed, and the magistrates should not permit any to be kept; and all parents, who cannot keep a tutor for the family, must send their children to the city school under penalty of the above forfeits.

32. Children, who desire to follow professional studies, provided they are qualified according to these amended regulations, need not have reached the thirteenth year, but may at an earlier age enter the school of the Jesuits, if they have presented themselves before the bishop or inspector of the district and received a written certificate in regard to their knowledge of reading, writing, letter-writing, the four rules in arithmetic and the fractions, and the different applications of the rule of three. This examination is also binding on all children who have been taught by tutors at home, when they intend to enter the school of the Jesuits, and also when the bishop and school inspector come to inspect the public schools in their district.

33. Tutors shall not be engaged by any family unless they prove, by a testimonial from the director of a seminary, that they have practised the art of teaching, or have proved their qualification before the pastor and teacher of the place; and in the latter case, they must have a certificate from the clergyman. Since



there is no want of opportunity for tutors to qualify themselves, and since the public interest demands that children should not be neglected in private instruction, as is frequently the case, we command all who engage tutors to observe this provision.

34. Children in villages, who often possess the ability to learn what is required in village schools before their thirteenth year, may leave school before this age, if the parents or guardians obtain a written certificate from the clergy and the inspector.

35. That children may not be kept from school, masters, in places where obligatory service is rendered, shall have no power to compel the young of either sex to work on their farms until they have completed their thirteenth year; yet those of eight years of age may tend the flocks in summer, if they attend the repetition schools on Sunday.

36. If farmers hire the children of poor people before their thirteenth year, they are required to send them to school, between St. Andrew's and Easter, every day, in the forenoon or afternoon, and pay half tuition fees for them to the schoolmaster. If they neglect to send such children to school they shall pay, as a forfeit, the full tuition fee, and double that if they remain disobedient, or the justice may decree other punishment. Schoolmasters shall charge for such children only half tuition fees.

37. The instruction in reading, writing, and arithmetic remains the same in the village schools; but in cities where children have hitherto been instructed free of charge, they shall continue to enjoy the same advantages in reading, writing, and arithmetic; also in music and Latin, whenever such was customary, and shall pay nothing if the schoolmasters can make their subsistence without this. But for all other branches which, according to this regulation, are taught by skilful teachers, we command all school inspectors to fix the fees to be paid the teachers, according to the condition of the place, at not above six groschen per month and scholar. The other tuition fees in cities remain as heretofore.

38. For the benefit of children of destitute parents, who are not able to pay for instruction, nor to buy the necessary books and papers, we command that twice every year, on the first Sunday after Three Kings, and on the twelfth Sunday after Pentecost, the clergy shall take a collection in their churches, and impress on the people the duty of charity to the poor. Separate money boxes shall be put up for each school, and the congregation be informed for which school each is designated.

39. The moneys collected shall be given to the court of the town, which, by the advice of the clergyman, shall first pay for books and paper, and then the tuition fee to the schoolmaster for these poor scholars. These amounts must be accounted for separately in the accounts of the commune, and if any more is necessary to defray all dues, the communal treasury, where the parish is entirely Catholic, or the individual Catholics in towns where there are other confessions, shall pay the balance. In cities, the disposition of these moneys is left with the clergy and the aldermen. Expenditures and receipts must constitute a separate chapter in the church accounts.

40. The pastor and aldermen of cities, the justices in towns, who have the best knowledge of the community, must judge what children need such benefice, and parents are not allowed to excuse themselves from the duty of paying the schoolmaster in order to procure necessities for their family until their incompetency has been acknowledged, and their names put on the list of the poor. Such list is to be given to the teacher, that he may know what parents are excused from paying for instruction.

41. The children should not be allowed to take home the books provided in this manner, but they must be left in the school. The teacher should number them, and, at the close of school, put them in a book closet, and have a regular inventory of them, as well as of other furniture and utensils, and must not permit any to be carried away. The Sagan school, which has the privilege of publishing school books, gives every tenth copy for the benefit of the poor, and teachers who want school books should never order less than nine, so as to have the tenth copy gratis for the use of poor children.

42. It is unnecessary here further to describe how a teacher should conduct

himself in his office, since the new schoolmasters have been instructed on these points in the seminaries, and the elder ones are required to acquaint themselves with their duties from the former regulation. But we command them especially to give diligent attention to the prescribed regulations, and the semi-annual abstracts thereof, for which purpose are appended formulas C and D.

43. It is the duty of the clergyman to see that the young of his parish are well taught in school. We therefore command earnestly all clergymen in cities and villages to take care that these regulations are faithfully observed.

44. Clergymen, who, on account of age or professional engagements, have been provided with one or more chaplains, may transfer the care over the schools to one of them, but they shall be responsible for their delegate.

45. At least once every two weeks the clergyman or his chaplain shall visit every school during school hours, of which the teacher shall make a note in his register, by placing a V, for visitation, on that day.

46. The clergyman, during his visitation, shall observe : *a*, whether the prescribed school-hours are kept ; *b*, whether the improved method is practised ; *c*, whether the catalogue and list is in order ; *d*, whether punishments are too severe ; *e*, whether the school utensils and books are well kept ; *f*, whether the school room is clean, and used for no other than school purposes, those cases excepted where no other room is provided for the teacher.

47. In regard to the children, the clergyman should see—*a*, whether all persons, who, according to law, should attend the day school, or Sunday and repetition school, are regular in their attendance ; *b*, whether the scholars are divided into classes on the basis of their abilities as well as age ; *c*, whether they are benefitted by the instructions and have made progress ; *d*, whether the teacher advances them too rapidly before they have well learned the preceding lessons ; *e*, whether the teacher employs children at his private work during school hours, and excuses them on this account from learning their lessons.

48. The clergyman shall also see whether the school-house and furniture are in good condition, and whether a copy of the school regulations and everything necessary has been provided ; and if not, he should notify the magistrate, the nobleman, or the justice ; also expostulate with parents who neglect to send their children, and endeavor to remove all defects and impediments as much as is in his power ; and where he cannot remedy them himself, he should notify the bishop and the school inspector. He should preserve the monthly statements of the teacher, and prepare an abstract of them, which he should be able to present to the bishop or school visitor.

49. He should remonstrate with the teacher for his faults, but not in presence of the children, only when alone, and endeavor to instruct him in those matters wherein he is deficient. He must never employ him for other purposes during school hours, especially not in his own interest. When ministerial duties, like the visitation of the sick, call him away, he must not take the schoolmaster along ; but may take one of the larger boys. He should also exhort his people on the advantages of instruction, before taking up the collections for school purposes.

50. We will not prescribe what religious instruction clergymen, and others who take their place, shall impart to the young. We direct them to the instructions from the Vicar General of the diocese of Breslau. However, we command them to explain to our subjects, besides the duties they owe to God, to their fellow-men and to themselves, that they owe also allegiance, fidelity, and obedience, and an unwavering submission to us, as their sovereign, and to the magistrates we have appointed. We remind them that it is not enough to say a few general words on this subject to them ; they must also be enlightened on these duties, and acknowledge them from motives of religion as well as of reason, and from their youth be ready to fulfil them.

51. In order to render as permanent as possible this reform of schools, which lies near our heart, we cannot be satisfied with committing the care of schools to the clergy only. We find it necessary that our bureau of War and Domain, the bureau of the Episcopal Vicariate, and the dioceses in our Silesian and Glatz districts, as well as all special school inspectors, give all due attention to this subject, so important to the State.

52. The head priests we command to visit all schools within their district during the week of Lent. This is the most convenient time in the country, because the children, attending school only in winter, will have then had three months' instruction, and, consequently, the visitation will show whether they have learned anything. If the visitation were held after Easter, or in the fall, many children would have left school at the first period, and at the other period many would not yet be in attendance, and no accurate opinion of the school could be formed.

53. The visiting head priest must observe, in his visitation, all that has before been said in regard to the duties of the clergy, and especially, he should note the following:

54. He should receive from the clergyman the monthly school register and the abstract made from it; compare it with the list of the children belonging to school, and see if all have attended the school. He should inquire into the causes of the children's absence, and whether the clergyman has taken proper steps to bring them in; if their non-attendance is owing to the carelessness of parents or guardians, he must summon them before him, remonstrate with them on their disobedience of law, and if necessary, remind the magistrates of their duty to levy the fines, or if the nobleman is at home he may tell him. To the latter he must also report if children of school age are in his service without being sent to school.

55. During the school visitation, he should be present at a lesson given by the teacher, in order to see and to hear whether he teaches after the prescribed method; he should examine the children separately, to find whether they have profited by the instructions, and have really advanced as far as the register says. Some members of the court and some deputies from the commune should also be present at this visitation, and should be summoned in the notice of visitation.

56. The register must show that the weekly visits, prescribed to the clergyman, have been made, and also whether the same is zealous and active for the interest of the school, or cares little for it; the visitor, by skilful questions, may inform himself of this from the schoolmaster or the scholar, so that he will not be deceived by false reports.

57. He should also ask respectable people in the commune whether the school hours are kept and the teacher does not abridge the time, or is prevented by various causes from teaching in school.

58. He should inquire into the conduct of the schoolmaster towards the children in school, and especially towards the clergyman or chaplain, when they remonstrate with him in the interest of schools, and if necessary, exhort and reprimand him, and the same he should do with the clergyman if circumstances require. He should ascertain from him the cause of the want of progress of a school, and what suggestions he has made for improvement.

59. He should also see and inquire whether the school-house is in a good condition and provided with all necessary furniture, and whether the teacher receives his salary and pay; he should endeavor to remove all those defects which the clergyman cannot remedy.

60. And of all this he should make a record, from which to draw up a report to the school inspector, as well as to see, at the next visitation, whether the defects at the preceding one have been remedied.

61. After the visitation, and within two weeks from Easter, he is to render a report to the school inspector, including the abstract of the school register, and state how far his instructions have been followed, and especially what defects he had not power to remove. A similar report must be transmitted by him about the middle of October, which contains what the clergyman has reported since the last visitation.

62. The Vicariate General shall appoint clergymen as inspectors of schools; also, for the Vicariates of other dioceses, persons well informed on educational subjects and the method now popular in Silesia, or such persons as will acquaint themselves with it. Each should have a certain district. Their duties are these:

63. *a.* They must obtain information on the condition of schools, personally or by circular.

64. *b.* For the school at their own place, they should have their teachers learn

the essential part of the new method, unless they are too old, or endeavor to engage a teacher who is familiar with methodical instruction, and knows how to organize a school. As soon as they have succeeded in this, they shall—

65. *c.* Send for one or two of the most active and skilful school teachers from each archiepiscopate of their inspection, that they may learn the necessary and important part of the method, namely: the method of spelling; of teaching in classes; the use of school books and tables; the preparation and keeping of catalogues and school lists. When they have learned this, they should return and organize their schools, and the school inspector should see that they do so.

66. *d.* Request every head priest to send successively all other teachers, particularly during the summer, to the one who has acquired the popular method; and he should instruct the others as he himself was taught in the school at the inspector's place.

67. *e.* That the head priests themselves may become acquainted with all that belongs to a good school, and which they cannot learn from these regulations, the above-named instruction, or from other books, the inspectors shall inform them of it.

68. *f.* They are also required to make visitations of schools after the head priests, to see how far their reports are reliable, and examine the schools in the same manner as described above.

69. *g.* Their duty is also to labor for the removal of all impediments and defects which the head priests could not remove; if they cannot succeed in this, they should make note of it in their reports. These reports they are to send twice a year to the office of the Vicariate General, and those, who belong to outside dioceses, to the vicar or deacons, always within one month after Easter or St. Michael's, and add thereto, if necessary, their own suggestions and the abstract from the head priests' reports.

70. *h.* They are required to publish and execute all laws and changes in laws relating to schools.

71. The office of the Vicariate General, and the vicars and deacons of outside dioceses, must make a semi-annual report on the condition of schools, from the reports of school inspectors, to our royal Council of War and Domain, namely: at the end of May and at the end of November, and inform in regard to—

72. 1st. All neglect of these general school regulations, by magistrates, landholders, or subjects, which cannot be reached by the head priests and inspectors; 2d, impediments of any kind; 3d, when school houses are out of repair, or the teachers are not paid; 4th, important observations and discoveries which may serve to a better arrangement of the school system; 5th, clergymen and teachers who distinguish themselves by their zeal and diligence in promoting education, that we may remove them to better benefices within our patronage; 6th, incorrigible schoolmasters in our domain or villages, that they may be removed from office.

73. We command our Council of War and Domain to see that all defects brought to their notice are remedied; all obstacles removed; all incorrigible teachers expelled and good ones put in their places; that all zealous school inspectors, directors of seminaries, clergymen and chaplains, who deserve reward for their exertions in the cause of education, are provided with better benefices whenever vacancies occur, and thus others may be encouraged to like zeal. To the Episcopal Vicariate General, the vicars and deacons of outside dioceses, to the magistrates, landholders, and to all our subjects, clergy or laity, whom these regulations concern, especially to all Roman Catholic school inspectors, head priests, directors of seminaries, clergymen, chaplains and schoolmasters, do we command, in the most serious manner, under pain of our disfavor and of due punishment, to superintend with all attention the fulfilment of these regulations to their full extent, and the duties made thereby obligatory on each and all.

Given at Potsdam, the 3d day of November, 1765.

FREDERIC.

GENERAL LAW FOR THE SCHOOLS OF AUSTRIA.

(December 6th, 1774)

MARIA THERESA, etc.

Having nothing more at heart than the true welfare of the countries which God has confided to us, and having always attentively considered whatever might contribute to this end, we have observed that the education of both sexes, the basis of the real happiness of nations, requires our especial care. This very important object has so much the more attracted our attention, inasmuch as the future destiny of man, the genius and thought of entire nations, depend mainly on the good instruction and right training of children from their tenderest years. Such an object, however, can never be attained if the darkness of ignorance is not dispelled by well regulated instruction and education, so that every individual can acquire knowledge according to his ability and condition. These necessary ends, the utility of which is generally acknowledged, we desire to reach by the following regulation for all schools in our kingdoms and hereditary states:

1. *Creation of a School-commission in every State of the Monarchy.*

In each State of the monarchy shall be formed a school-commission, composed of two or three counselors of the government, one under-delegate, and a secretary, associated with the inspector-general of normal schools.

This commission is charged with the supervision of all school interests, school-officers as well as school material, and they shall assure themselves that the method prescribed by ordinance is employed.....Frequent reports on the condition of schools must be rendered.

2. *Grades of schools, and where they are to be situated.*

Schools are of three classes: Normal schools, Principal schools (superior primary schools,) and Trivial schools, (primary.)

There shall be one normal (pattern or model) school in each province. All other establishments must conform to this school. The corps of teachers shall consist of a director and four or five teachers, one of whom shall be a catechist.

Every capital of a canton must possess a Principal school.

Finally, shall be established Trivial schools in all the small cities or boroughs in the country, and in all villages where exists a parish or a filial church, distant from the centre.

3. *Rules for the establishment of schools.*

It is not intended to establish new schools every where, but to improve existing schools. In future no teacher shall be admitted, unless he knows the prescribed method of teaching, and has been found capable, on examination before the teachers of the Normal school.

The right of keeping school or teaching the young shall continue to all laymen and ecclesiastics, who at present are engaged in the profession of teachers; but they must, as soon as possible, make themselves familiar with the new method, and conform to the principles of this ordinance.

New schools shall be created only where none exist, and only as many as are necessary; also in those places where the young are too numerous for the existing schools to accommodate all, or for the teachers to bestow the necessary care upon them. When the insufficiency is proved to exist, new schools must be erected, or the old ones repaired, as appears necessary, at the expense of the communes, who draw direct profit therefrom, unless the nobility, who have the advantage of drawing from these schools employees of good character, take upon themselves the expenses, or other means are devised.

The school-commission is charged with stating the real wants, and to determine what portion of the expenses each party shall contribute.

4. *Rules for the construction of School-houses.*

When it is necessary to build school-houses, or to repair the old buildings, care must be taken to have as many distinct class-rooms as there will be teach-

ers to give lessons at the same hour, since it is not possible that two or more persons teach at the same time and in the same place.

And as it is necessary that the attention of children should not be distracted by the domestic affairs of the teachers, the school-rooms must not be used for any other purposes than those of the school, and must, even in villages, be separated from the teacher's dwelling.

There shall be not only a sufficient number of rooms, but they shall be well lighted, and the Principal schools shall have a convenient room for examinations; each room must be well provided with benches, tables, blackboards, writing-desks, and other necessary utensils, also a locked case for the books.

5. *Branches of Instruction in each of the three classes of Schools.*

NORMAL SCHOOL.—A. RELIGION.—Instruction in religion is to be given :

1st. From the catechism specially introduced by the bishop of the diocese, or from the Vienna catechism for normal schools, approved by the bishops.

2d. In a systematic manner, for which purpose the Reader is arranged.

3d. As history, that the pupils may learn under what circumstances and in what periods the divine revelations took place; what lessons man should draw from them, relative to his own conduct, etc.

4th. By means of interpretation of passages in the Reader, which treat of the principles of morality and the condition of man.

B. READING.—Reading, writing, and orthography; arithmetic and its application; and, in general, all that can contribute to inspire a well regulated conduct, and be conducive to good manners.

C. LANGUAGE AND SCIENCE.—Subjects which serve to prepare pupils for the study of Latin, or those who intend to pursue the career of political economy, and especially those who will devote themselves to agriculture and the arts and trades, should be introduced. The mother language should be taught by exercises in composition; and the pupils should obtain a sufficient knowledge of Latin to be able to begin the *humanitas*, to learn surgery and pharmacy, or to take up the profession of a writer. The best principles of economy, and especially of domestic economy, should be taught; also the history of arts and trades, as well as natural history, within the limits of utility and necessity. Also the elements of history and geography, especially of their own country; also the principles of surveying and mechanics; drawing by means of compass, ruler, and instruments.

D. METHODS OF INSTRUCTION.—Those who aspire to the profession of teaching, shall be specially made to know, and have explained, what are the duties and qualifications of a good teacher; the methods and practical means by which order and discipline are maintained in classes; how the school registers must be kept, and in what manner they should question the pupils in an examination; finally, what is required of public and of private teachers.

Principal Schools.—The programme of the Principal schools comprises the subjects indicated under A and B, and, as much as possible, those under C, as the number and ability of the teachers and the time prescribed permit.

Trivial Schools.—The subjects of instruction in the schools of small cities, boroughs and villages, are:

(a.) Religion and its history; morals drawn from the Bible and reading.

(b.) Reading printed and written type; current handwriting; the four rules of arithmetic, with the rule of simple proportions.

(c.) In the country a little book is to be used, which has been written to form "an honest citizen," and teach him thrift and management.

6. *Who shall teach the different branches of Instruction.*

Ecclesiastics alone may teach the Christian doctrine. The Normal and Principal schools have a professor specially charged with giving every day, at least one hour, lessons on the catechism, on sacred history and morality, and explaining the epistles and gospels. It shall be the duty of the vicar to catechise twice, or at least once a week, in the Trivial schools. If the vicars are not sufficient to teach religion in the schools of small towns, burghs, and of the country, friars may be appointed, with approval of the bishops, by the superiors of the neighboring convents. The schoolmasters shall be present during the lessons in the catechism, and pay good attention, that they may be able to

repeat to the children the explanations which have been made. If the vicar or clergyman is prevented, the teachers themselves shall be obliged to question the children on what they have learned by heart, for instance, on verses from the Holy Scriptures, etc., or on what they have studied in the Reader relative to religion. Other subjects can be taught by laymen or ecclesiastics, provided they have passed their examination. The teachers of the Principal schools consist of the director and four or five assistant teachers.

7. *School-books.*

In order to have instruction uniform, the books and charts to be used in school are prescribed, and the necessary regulations will be issued, to guide the teachers in the duties obligatory upon them. None but the prescribed books shall be used in school; but teachers, who desire to perfect their own education, may procure other books treating on the subjects taught in the school.

8. *Of the manner of Teaching.*

Instruction must be given simultaneously to all pupils of the same class. The teacher should take special care that all pupils read together. He will punctually conform to the directions given in the books on method, and aim less at crowding the memory of children than at developing their mind by clear and precise explanations. He should accustom the children to express themselves with facility and exactitude on things which have been explained to them.

9. *Division of classes.*

All the children, though of different ages and sex, who are to learn the same branches, should be in one class. Each class to comprise three divisions: a superior, intermediate, and inferior division.

10. *Of school-hours.*

In Winter, the hours of school shall be from 8 to 11 in the morning; in the Summer, in the country, from 7 to 10; from 2 to 4 P. M. during the year.

In cities, the course of the first term shall commence on the 3d of November, and finish on Palm Sunday eve; the course of the second term to begin on the second Monday after Easter Sunday, and last to St. Michael's day.

In the country, the schools begin on the first of December, and remain open to the end of March. In these are received the children between nine and thirteen years of age, because most may be called to aid their parents during the Summer season, and this is the reason that they are not obliged to frequent school at other periods. The course of the second term begins on Monday after Easter week, and terminates on St. Michael's day. During the season of harvest, instruction is suspended for all children above eight years; but continues for the children between six and eight years.

As children, poorly clothed, can not always come to school in Winter, on account of the bad roads and the rigor of the season, they shall not be forced; yet their parents or guardians are free to send the young children to school in Winter as well as in Summer. Teachers will select a special hour to instruct such children, in order not to interrupt or delay the lessons given to other pupils.

11. *The time to be devoted to each subject.*

All subjects must be thoroughly and suitably explained within the time fixed for the duration of each course. Pupils who have not dexterity for writing, or aptitude for other branches, may double one or more courses.

12. *Duty of School-attendance.*

In cities, all children of both sexes, for whom parents or guardians can not or will not take a special teacher, must, without exception, attend the public schools from the age of six years until they are sufficiently instructed to choose a trade or profession. As they hardly attain this degree of instruction before the age of twelve years, we shall see with satisfaction, if parents send them to school during six or seven years, and permit them to attend even longer.

Children who desire to enter a Latin school before their twelfth year, must submit to a public examination, and obtain a certificate from the school-inspector that they possess the required knowledge.

Where distinct schools exist, girls shall be taught separately, and they shall

be instructed also in sewing, and all work suitable for their sex. If no distinct schools are organized, the girls shall attend the mixed school, but seated on separate benches.

13. *Duty of parents and guardians to send children to school.*

As the education and instruction of youth has a very great influence on the general well-being, we will not let the good success of our maternal care, in this regard, be endangered by the carelessness of parents or guardians. Consequently we ordain, that they send their children to school at the proper age, or have them instructed at home. We recommend to magistrates and superiors to watch over the execution of this ordinance, to reprimand, and if necessary, to enforce obedience on the part of parents or guardians who neglect this duty.

After the necessary measures shall have been taken to train capable teachers in the Normal schools, no person shall be permitted to follow the work of teaching, if he possesses no certificate of ability, signed by the authorities of a Normal or Principal school, and for the want of such certificate he shall be excluded from the profession.

14. *Work or other necessity shall not dispense from school attendance.*

That the service of orphans may not be an obstacle to their instruction, it shall not be lawful for magistrates to put them out to service before their thirteenth year; or at least those who have not reached that age must be permitted to attend school in Winter. Other persons, who take into their service orphans below thirteen years of age, will be obliged to send them to school morning and afternoon, and if they are not insolvent, they shall pay half tuition fees for them.

15. *Of repetition schools, (schools for adults.)*

In the country, as well as in cities, the young people who have ceased to belong to primary schools, and particularly those who are apprentices, must, especially in Summer, on Sundays after divine service, if possible, congregate at the common school, where, for two hours, the teacher will recapitulate with them, under the inspection of the curate or vicar. They shall attend these exercises till they are twenty years old. First, they will read the epistle or gospel of the day; then have an exercise in reading, writing, arithmetic, that they may revise the knowledge acquired at school. For these repetitions, passages will be selected from standard works, treating on religion, morality, and all subjects that tend to cultivate honest principles and domestic and simple tastes. The young should be frequently questioned on various important themes.

The obligation of apprentices to take part in these repetitions shall be such, that their apprenticeship can not be declared ended, until they have obtained from the school-inspector a certificate, stating that they have fruitfully attended the repetition-school, after making good progress in religion, reading, writing, and arithmetic, in the ordinary course.

16. *Of keeping a school-register, to mark the industry and progress of pupils.*

With the two-fold object of knowing whether all the children of school age attend school, and whether the want of progress in pupils must be ascribed to their frequent absence, different registers shall be kept.

In cities, the magistrates, twice every year, at Easter and St. Michael's, shall revise the list of children of school age, that is, of those who have attained their sixth year. Each time the list will be communicated to the school-teacher, that he may know which children are obliged to frequent the school.

In the country, if the teacher is also sacristan, he can himself ascertain, from the baptismal register, the age of every child in the place, and know what children are of school age.

This will also enable him to control the assertions of parents, who often attempt to escape the obligation of sending their children to school.

That the object may be reached, each teacher shall keep an alphabetical register, in which he will inscribe the names of children from the list, indicating their age, the dates of their admittance and promotion from one class to another. He will also note the absence of each pupil. At the commencement or end of the register, the number of lessons which the teacher has given during the month, and the subjects taught, should also be entered. This register can

be advantageously consulted in the examinations, especially to know who absent themselves.

A second register relates to the degree of application and progress. It should be examined every month. Every day, after prayer, in the morning as well as in the evening, the teacher must assure himself of the presence of the pupils; for this purpose it will suffice to read their names from the catalogue, marking those present with a line, the late-comers by a dot, and leaving blank the space for the absent. As this register will distinguish the idlers from the diligent, it should be kept with exactitude, justice, and good order. If by a sentiment of animosity, or by negligence, the teacher fails to do his duty in this respect, he shall be punished as the case may require. Every teacher shall transmit, one week after vacation, an abstract from this register to the school-inspector.

17. *Ordinary inspectors charged with examining the condition of schools.*

In order that the present regulation shall be observed, the authorities shall appoint in every village some special inspectors, whose reports, addressed to the Commission of Studies, shall contain their names. In the Normal and Principal schools the director has the superintendence; moreover, a citizen of the place, a friend of education, shall be nominated by the magistrate, to watch the progress of the schools, and to assure himself that the regulations are faithfully carried out. This inspector will keep account of the children that are diligent, and of those who are not regular in their attendance. He shall state whether the teacher proves zealous or negligent, or conforms to the ordinance. The inspectors should not make their visits at stated periods, but whenever they think proper, without notifying the teachers.

In cities, burghs, or the country, the curate of the parish shall be appointed inspector, one of the magistracy and a prudent man from the inhabitants of the commune. They shall conform to what has been ordained in regard to the inspectors in larger cities. Every inspector addresses a report to the Inspector-General of Normal Schools, on the condition of the schools in his jurisdiction.

18. *Nomination of Inspector-Generals.*

The School-Commissions shall elect as Inspector-Generals only persons perfectly capable. A certain district will be assigned to each Inspector-General, in which to make his visits and institute schools. These Inspectors shall make themselves acquainted with the deficiencies of schools; examine the children in presence of the teacher, and receive the reports of the local inspectors, rendered at Easter and St. Michael's. These reports the Inspector-Generals forward to the government, which refers them to the School-Commission. They add an abstract of their observations, as well as their remarks on the following objects:

1. In what place and point do magistrates, gentry, and inhabitants, act against the ordinance.
2. What are the obstacles to the success of schools.
3. In what places are school-buildings not in order, or need repair; how are the school-servants salaried.
4. What measures should be taken to improve instruction.
5. What curates, vicars, catechisers, and schoolmasters have distinguished themselves by diligence and zeal in teaching, and deserve to be rewarded.
6. What teachers neglect their duty and should be punished; or are incorrigible, and should consequently be discharged.

19. *The manner of introducing reform into education.*

Immediately after the next Summer season, schools shall be every where established, and the instruction of teachers be promptly provided for.

20. *Obligation of ecclesiastical candidates and applicants for the monastic state.*

As it is of great importance that ecclesiastics should have a perfect knowledge of the new plans for schools, that they may be able to practice the prescribed methods, their duty being chiefly to give religious instruction and to watch the progress of the schools in the country, we ordain hereby, by virtue of our legislative power, that no priest shall be proposed for a parish, unless he has provided himself with a certificate from the catechist of the *preparanden* (those

who prepare for admission to a clerical seminary,) stating that he is sufficiently acquainted with the method of instruction.

It is our will that in future, when schools are once established, no laymen shall be admitted into a convent, unless they understand the theory of instruction, and produce a certificate from one of the Normal Schools.

We rely with confidence on the zeal of bishops and curates, in behalf of the interests of religion, and on the regard they have for us, that they will seek to improve education; and diligently aid in the execution of our orders.

21. *Prohibition to Teachers to keep a tavern.*

Though we are well disposed to permit teachers in the country the exercise of an honest trade, provided it does not form an obstacle to their special duties, yet we order and ordain hereby, that no teacher who receives a sufficient salary and enjoys an honest subsistence, shall keep a tavern, under pain of removal.

Neither can we permit school teachers to make music or play at a fair, wedding, or other occasion, in taverns or similar houses. This in future they are strictly forbidden to do, likewise, under pain of removal. We also forbid curates to be accompanied by the teacher in their visits to the sick; they should address themselves to other persons.

22. *Examinations and rewards.*

Every year, in the various schools, shall be held an examination on all subjects of instruction during that year, in order to ascertain the progress of the scholars.

In cities, this examination shall take place in presence of the deputies of the magistrate, and in the country, in presence of the curate, some of the gentry, and some aldermen.

Every pupil can show his degree of knowledge. The public also shall be admitted, and may question the scholars within the limits of matters contained in the class-books.

In cities it becomes a duty to examine whether young people, who desire to enter the Latin Colleges, and to devote themselves to the study of science, have the required attainments. Also it should be ascertained whether the parents approve the sending of their sons to gymnasiums. If, as a result of the examination, it is shown that idle scholars have not attained the necessary instruction, the inspectors may oblige them to continue to attend the school.

After the examination, the foundation and other benefices existing shall be distributed to the most deserving scholars, to encourage them and to stimulate the zeal of others. For this should be chosen: 1, scholars who have given convincing proofs of their progress; 2, those who surpass others in good conduct.

23. *Reports on the condition of schools.*

[This paragraph only repeats the directions of §§ 17 and 18, concerning the preparation and transmission of semi-annual reports.]

24. *The zeal of inspectors and teachers is the basis of promotion.*

Notwithstanding it is the duty of all to fulfill, to the fullest extent, the obligations of the office intrusted to them, we are disposed to promote to better places those who distinguish themselves by their zeal and successful teaching.

We wish school-teachers and all who teach in cities to take rank immediately after the magistrates; in the country, after the aldermen, so that during solemnities they have a right to a position before other persons.

Ecclesiastics, who give instruction in the catechism, or those who prove their zeal for schools, shall have the preference not only in the benefices belonging to our patronage, but in all benefices, of ecclesiastical or lay patronage, it being our expectation that the patrons will second our views, and work with us for the general welfare. We also hope that all will appreciate the maternal care with which we have begun to regulate the principles of education and general instruction of youth. We ordain that all regencies and governments, subordinate to us, shall execute in the provinces and follow faithfully all regulations prescribed. We command likewise all superior ecclesiastics, and, in general, all superior civil officers, magistrates, noblemen and their employees, schoolmasters, and all our faithful subjects, to conform to the spirit and intent of this ordinance.

Given in our capital and residence, city of Vienna, December 6, 1774.

RECENT SCHOOL LEGISLATION OF AUSTRIA.

I.

LAW RESPECTING COMMON SCHOOLS.

[Issued by the Emperor Francis Joseph, with the agreement of both Houses of the Imperial Diet, May 14, 1869.]

A.—PUBLIC ELEMENTARY OR COMMON SCHOOLS.

1.—AIM AND ORGANIZATION OF THE COMMON SCHOOLS.

§ 1. The common school (*volksschule*) has in view the religious and moral education of the children, and aims at developing their intellect, and imparting such knowledge as is necessary to make them good men and citizens.

§ 2. Any common school that is supported or assisted by the state, the province, or the municipality, is a public school, and as such accessible to all youth, without difference of creed.

All other schools are private institutions.

1.—Common elementary Schools.

§ 3. In every elementary common school (*allgemeine volksschule*) at least the following subjects shall be taught: Religion, language, arithmetic, the most necessary elements of natural philosophy, geography and history, with particular regard to the country and its constitution, writing, geometrical forms, singing, and gymnastics. Girls shall also be instructed in needlework and housekeeping.

The extent to which these subjects shall be taught, and additional branches, depends on the grade of the school and the number of teachers.

§ 4. The plans of instruction for these schools, as well as all the other organization, will be determined by the Minister of Education, on the recommendation of the provincial school boards.

§ 5. Religious instruction is cared for and superintended by the respective church boards.

The number of lessons in religion will be fixed in the plan of instruction.

The distribution of the subjects for each year's course will be fixed by the church boards.

Both the teachers of religion and the clerical boards must observe the school laws, and the orders of the school boards made in pursuance thereof.

All directions by the clerical board shall be made known to the principal of the school (§ 12) through the district school superintendent. Such directions as are incompatible with the general school order shall not be communicated.

In places without a clergyman who can regularly give religious instruction, the teacher may be obliged, with the consent of the clerical board, to take part in teaching the children of his creed, in accordance with the directions given by the school boards.

If any of the denominations should omit to care for religious instruction, the provincial school board, after hearing those who are interested, will make the needed arrangements.

§ 6. The language used for instruction, and whether a second language shall be taught or not, is determined, within the limits drawn by the laws, by the provincial school board, (*landes schulbehörde*.)*

§ 7. The subjects to be taught shall be allotted to the *eight years* during which every child must attend school in a way that each year, if possible, may constitute a *grade*. The division of the children into sections or classes depends on the

* School board of the country; meaning not Austria, but the various countries, as Bohemia, Tyrol, Austria Proper, &c., called by the translator provinces.

number of children and teachers. Whether a separation of boys and girls shall be made is left to the decision of the local school committee and the district school superintendent.

§ 8. A list of admissible text-books will be approved by the Minister of Education, after hearing the provincial school boards.

The district school superintendent chooses from among the admissible text-books, after hearing the teachers' conference of the district.

§ 9. The number of weekly lessons (lesson hours) in the different years' courses is set down in the plan of instruction, (§ 4.)

In the (*fabrik schulen*) factory schools, (§ 60,) instruction shall embrace at least twelve hours a week, and these hours shall be only between 7 A. M. and 6 P. M., with exception of the noon hour.

§ 10. To meet the special wants of particular localities, institutions for little children, who are not yet bound, and allowed to go to school, (less than six years old,) or special courses for an agricultural or industrial education, may be joined to the school.

§ 11. The number of teachers in any school depends on the number of children in attendance.

If the attendance in three successive years reach the average number of 80, positively a second teacher shall be provided; if the number of 160, a third teacher must be employed, and so on in proportion.

The number of teachers once employed in a school cannot be lowered unless by consent of the provincial school board, and then only if, in five successive years, the above average number has not been reached.

The legislature of the province has the right to lower the above maximum of children to be taught by one teacher.

§ 12. The responsible conductor (*leiter*) of a school is the teacher, and where several are employed, the head master or principal teacher, (*oberlehrer*.)

§ 13. If a school has two or three teachers, one of them may be an under master or assistant, (*unterlehrer*.)

If there be four or five, two of them may be assistants.

With a greater number of teachers, the third part of them may be under masters.

§ 14. The §§ 3—13 apply also to schools for girls, and to the employment of female teachers and assistants.

With more than one teacher, the head governess of the school is called *oberlehrerin*.

§ 15. The female teachers and assistants of girls' schools must, as a rule, give instruction in needlework and housekeeping, (*haushaltungs-kunde*), for which a special section shall be arranged.

Where the girls' school is in charge of male teachers, a special female teacher must be employed for this instruction.

Where separate schools for girls do not exist, the girls shall have their work-schools (*arbeits-schulen*) for that purpose separate, or in connection with the common school.

§ 16. Whether female teachers shall be employed in the lower classes of the common school, also for the education of boys, is left to the legislature of the respective provinces.

2.—Burgher School.

§ 17. The burgher school aims at giving all those who attend no secondary school (*mittelschule*) an education going beyond the limits of the common elementary school, (*allgemeine volksschule*.)

The subjects of instruction are religion, language and composition, history and geography, natural history and philosophy, arithmetic, geometry, book-keeping, free-hand and geometrical drawing, calligraphy, singing, gymnastics, with the addition, for girls, of needlework and housekeeping.

In the non-German burgher schools, opportunity shall be given of learning German.

With the consent of the provincial school board, also one living language may be taught in a burgher school, without being obligatory.

§ 18. Those who support the school may organize the common elementary school in a way to serve at the same time the end of a burgher school. In this case the school shall consist of eight classes.

An independent burgher school of three classes may be established, which shall follow the fifth year's course of a common school.

§ 19. The §§ 4—8 and 10—14 apply also to the burgher school, except the following points:

1. The separation of boys and girls, in a burgher school of three classes, must take place throughout; in one of eight classes, in the three highest courses.
2. If practicable, special teachers of religion shall be employed.
3. The conference of teachers chooses from the admissible text-books; they may also apply to the provincial school board for new readers and text-books.
4. The responsible conductor of the school is called *director*.

II.—SCHOOL ATTENDANCE.

§ 20. Parents or their substitutes are not permitted to leave their children or wards without the instruction prescribed for the public elementary schools.

§ 21. The obligation to attend school begins with the sixth year completed, and lasts until the fourteenth year completed. The children leave school only when they have acquired the indispensable knowledge of reading, writing, and arithmetic.

At the end of a school year, such children as will complete the fourteenth year of age in the next six months, and have completely mastered the subjects of the elementary school, may be permitted by the district school superintendent to leave school, if there be important reasons for doing so.

§ 22. The children are admitted only at the commencement of the school year, except when parents move to the place in the mean time.

The district school superintendent, and, in urgent cases, the local committee, may admit children exceptionally during the course of the school year.

§ 23. Children may be relieved from the obligation to attend the common school for a longer or shorter period, viz: boys who attend a higher school; children who suffer from a mental or a severe corporeal infirmity; finally, such as are instructed at home or in a private school. In the last case, the parents or their substitutes are responsible that at least the instruction prescribed for the public school is imparted to their children in a satisfactory manner. If there be a doubt in this regard, the district school inspector is obliged to convince himself whether the doubt be well grounded or not. The parents must submit to the measures taken for that purpose.

§ 24. Parents or their substitutes, as well as the owners of factories and industrial establishments, are responsible for the attendance of the children, and may be compelled by coercive measures to their duty in this regard. The particulars will be fixed by the legislature of the province.

§ 25. Parents and their substitutes must provide their children with the necessary books and other implements of instruction.

III.—EDUCATION AND QUALIFICATION OF TEACHERS.

§ 26. Teachers are trained in seminaries separate for the two sexes.

§ 27. For the practical education of the teacher pupils, each seminary has joined with it a *school of practice*. (*Abungs- und musterschule*;) and in seminaries for female teachers also a "*kindergarten*," (a children's garden or infant school.)

For teaching and practising agricultural work, a suitable lot of land in the neighborhood shall be joined to each seminary for male teachers.

§ 28. The course embraces *four* years.

§ 29. In the seminaries for male teachers are taught religion; pedagogy, with its history and auxiliary sciences; grammar, composition, and history of literature; mathematics, (arithmetic, algebra, and geometry;) natural history, (zoology, botany, and mineralogy;) natural philosophy and elements of chemistry; geography and history; agriculture, with special regard to the cultivation of fruit and vegetables, and to the breeding of silkworms and bees; the constitution of the country, calligraphy, free-hand and geometrical drawing, music, and gymnastics. The pupils must be made acquainted, wherever there may be an opportunity, with the method of instructing blind and deaf mute children, and also with the organization of a well-managed *kindergarten*, (infant school.)

§ 30. In the seminaries for female teachers are taught religion; pedagogy and its history; grammar, composition, and history of literature; geography and history; arithmetic; natural history and philosophy; calligraphy, drawing, sing-

number of children and teachers. Whether a separation of boys and girls shall be made is left to the decision of the local school committee and the district school superintendent.

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4. The responsible conductor of the school is called *director*.

II.—SCHOOL ATTENDANCE.

§ 20. Parents or their substitutes are not permitted to leave their children or wards without the instruction prescribed for the public elementary schools.

§ 21. The obligation to attend school begins with the sixth year completed, and lasts until the fourteenth year completed. The children leave school only when they have acquired the indispensable knowledge of reading, writing, and arithmetic.

At the end of a school year, such children as will complete the fourteenth year of age in the next six months, and have completely mastered the subjects of the elementary school, may be permitted by the district school superintendent to leave school, if there be important reasons for doing so.*

§ 22. The children are admitted only at the commencement of the school year, except when parents move to the place in the mean time.

The district school superintendent, and, in urgent cases, the local committee, may admit children exceptionally during the course of the school year.

§ 23. Children may be relieved from the obligation to attend the common school for a longer or shorter period, viz: boys who attend a higher school; children who suffer from a mental or a severe corporeal infirmity; finally, such as are instructed at home or in a private school. In the last case, the parents or their substitutes are responsible that at least the instruction prescribed for the public school is imparted to their children in a satisfactory manner. If there be a doubt in this regard, the district school inspector is obliged to convince himself whether the doubt be well grounded or not. The parents must submit to the measures taken for that purpose.

§ 24. Parents or their substitutes, as well as the owners of factories and industrial establishments, are responsible for the attendance of the children, and may be compelled by coercive measures to their duty in this regard. The particulars will be fixed by the legislature of the province.

§ 25. Parents and their substitutes must provide their children with the necessary books and other implements of instruction.

III.—EDUCATION AND QUALIFICATION OF TEACHERS.

§ 26. Teachers are trained in seminaries separate for the two sexes.

§ 27. For the practical education of the teacher pupils, each seminary has joined with it a *school of practice*. (*Abungs- und musterschule*,) and in seminaries for female teachers also a "*kindergarten*," (a children's garden or infant school.)

For teaching and practising agricultural work, a suitable lot of land in the neighborhood shall be joined to each seminary for male teachers.

§ 28. The course embraces four years.

§ 29. In the seminaries for male teachers are taught religion; pedagogy, with its history and auxiliary sciences; grammar, composition, and history of literature; mathematics, (arithmetic, algebra, and geometry;) natural history, (zoology, botany, and mineralogy;) natural philosophy and elements of chemistry; geography and history; agriculture, with special regard to the cultivation of fruit and vegetables, and to the breeding of silkworms and bees; the constitution of the country, calligraphy, free-hand and geometrical drawing, music, and gymnastics. The pupils must be made acquainted, wherever there may be an opportunity, with the method of instructing blind and deaf mute children, and also with the organization of a well-managed *kindergarten*, (infant school.)

§ 30. In the seminaries for female teachers are taught religion; pedagogy and its history; grammar, composition, and history of literature; geography and history; arithmetic; natural history and philosophy; calligraphy, drawing, sing-

ing, and housekeeping. The pupils must also be made acquainted, whenever there is an opportunity, with the organization of a well-managed *kindergarten*.

Teachers of female industries are trained either in the seminaries or in separate courses.

§ 31. The language of instruction is determined by the Minister of Education, on the recommendation of the provincial school board, so far as the law of the province does not fix it otherwise.

Where it should be desirable for teachers to know also a second language of the country, the pupils shall have opportunity to acquire the same, to enable them eventually to teach it.

§ 32. For admission to the first year's course, the fifteenth year completed, bodily fitness, moral integrity, and suitable education are required.

This education is tested by a severe examination, which in general embraces the subjects taught in an under real school or an under gymnasium, except foreign languages.

The public seminaries are accessible to all, without difference of creed.

§ 33. The number of pupils in one year's course shall not exceed 40.

§ 34. The teacher pupils having finished their four years' course shall be subjected to a rigid examination, in the presence of a deputy of the provincial school board, in all the subjects taught in the seminary, and if they pass the same satisfactorily, they shall receive a certificate of maturity, (*zeugnis der reife*.)

§ 35. Teachers employed in the seminary are the principal, (*director*), who is at the same time head master of the school of practice; two to four head teachers, (*hauptlehrer*;) the teachers of religion, and the needed assistants, who are all nominated by the Minister of Education, after hearing the provincial school board.

Teachers of the school of practice are bound to assist in training the teacher pupils.

§ 36. The salaries are fixed: of principals, 1,200 to 1,800 florins; of teachers, 1,000 to 1,200 $\frac{1}{2}$, with an addition of 100 $\frac{1}{2}$ every five years, until the twentieth year of service.

The principals in Vienna and Trieste receive, moreover, free lodgings, or 300 $\frac{1}{2}$, and teachers 150 $\frac{1}{2}$ a year each.

§ 37. Instruction in the seminaries is gratuitous. Poor and talented pupils may receive stipends, but must oblige themselves to teach in a public school at least for six years.

§ 38. The certificate of graduation (§ 34) qualifies only for an employment as under master or assistant.

For a definitive appointment a certificate of qualification is requisite, to be gained by a second examination after an experience of at least two years.

For this examination special committees will be established by the Minister of Education, to be composed of principals and teachers in seminaries, school inspectors, and able teachers of common schools. Deputies of clerical boards will assist to examine the candidates in religion.

The certificate acquired by this examination sets forth the qualification for teaching either in elementary and burgher schools, or only in the former.

§ 39. This examination may be repeated if the first trial was not successful, but not oftener, unless authorized, on proposal of the committee, by the Minister of Education.

§ 40. Such candidates as have passed this examination, but have since then, for more than three years, not been employed in a public school, (§ 2,) have to pass the examination once more before this definitive appointment. In special cases, the Minister of Education may dispense with this.

§ 41. Such young men as have not made the full course in a public seminary, if 19 years old, may be examined in a seminary for acquiring the certificate of maturity. (§§ 34 and 38, al. 1.)

§ 42. For a more comprehensive education of teachers, special teachers' courses (*pedagogical seminaries*) shall be established in the universities or technical high schools, (polytechnical schools.)

The particulars will be prescribed by the Minister of Education.

IV.—PROFESSIONAL IMPROVEMENT OF TEACHERS.

§ 43. The pedagogical and scientific (literary) improvement of teachers shall be furthered by means of educational journals, libraries for teachers, periodical conferences for teachers, and special courses for professional improvement.

§ 44. In each school district, a library for teachers shall be established. Its administration will be entrusted to a committee chosen by the district conference.

§ 45. A conference of teachers shall be held in each school district at least once a year, and conducted by the school superintendent of the district. They shall deliberate and debate on school affairs, particularly on subjects taught in the common schools, on methods, means of instruction, discipline, etc. All teachers of the common schools and of the teachers' seminary in the district are obliged to take part. Teachers of private schools are at liberty to attend.

§ 46. In every province, deputies of the district conference will assemble every third year in conference, (*landesconferenzen*), with the school superintendent of the province as chairman.

§ 47. Special courses for the professional improvement of teachers (*fortbildungscurse*) will be held in the seminaries, generally during the autumn vacation. Teachers, if summoned by the school board of the province, must attend.

V.—LEGAL SITUATION OF TEACHERS.

§ 48. Service in public schools is a public office, (*öffentlichesamt*), and accessible to all Austrian citizens without difference of creed.

To be employed as teacher or under master, besides the Austrian citizenship, evidence of qualification is required. (§ 38.)

Those are excluded who by a penal verdict have lost their eligibility to the common council of their village or town.

§ 49. To fill vacant places provisionally and for a limited time is the province of the district school superintendent; in the teachers' seminary and their schools of practice, that of the provincial board.

§ 50. Principals, teachers and under masters in public schools are definitely appointed by the provincial school board, with the concurrence of those who support the school. This concurrence consists in the right either of proposing (*vorschlagen*) or of presenting (*ernennen*) candidates.

The particulars respecting appointments and promotions will be fixed by the legislature of the province. The appointment of "presented" teachers, (see al. 2.) who have the requisites, (§ 48,) cannot be refused, unless they can be charged with such moral deficiencies or such actions as would cause the removal of a teacher already appointed.

§ 51. The number of lessons which a teacher may be obliged to give depends on the wants of the respective school. But for any time exceeding thirty lesson hours a week, the teachers must receive additional compensation.

§ 52. What sidework shall be incompatible with the office of teacher will be determined by the legislature of the province.

§ 53. Teachers who do not give satisfaction, and who, having been referred to the special course for improvement, (§ 47,) are by the body of teachers in that seminary declared not qualified to continue their profession, may be compelled by the provincial school board to pass once more the second examination. (§ 38 al. 2.) If the result be not satisfactory, the right gained by the former examination will be lost, and the provincial school board shall determine whether he may be henceforth employed as under master, or removed entirely.

Under masters, who have not made the second examination (§ 38, al. 2) within the first five years of their practical service, after they got the certificate of maturity, and such as are not permitted to repeat their second examination, (§ 39,) must surrender their certificate of maturity and retire from the service.

§ 54. Improper deportment of teachers is followed by disciplinary measures, which do not exempt from an eventual penal prosecution.

§ 55. The amount and mode of drawing the legal income shall be regulated by the legislature of the province in the following principles:

1. The minimum shall not be reduced by any school community, and shall be so adjusted, that teachers and under masters can be free from interruption by work, and can devote their whole strength to their profession, and that the former will be able to support a family respectably.

2. Teachers must receive their salary directly from the school committee, and shall not be charged with collecting it.

3. The school committees shall see that the salary is paid regularly and punctually.

§ 56. All definitively appointed teachers and such under masters as have the cer-

tificate of qualification, (§ 38, al. 2.) and their widows and orphans, are entitled to receive a *pension*, and in this regard must be treated like civil state officers. In determining his period, the time which a teacher after the second examination has spent in a provisory employment at a public school shall be counted.

§ 57. For defraying these expenses for superannuated teachers or their widows, pension funds shall be established in each province by the contributions of teachers, of communities, and of the province, and also by assigning to these funds appropriate revenues. These funds shall be administered by the provincial school board. Communities caring independently and suitably for the pensioning of their teachers shall be free from the obligation of contributing to the common pension fund. The legislature of the province will determine the particulars.

§ 58. Teachers paid by the state receive, themselves and their families, the legal pensions from the state funds.

VI.—ESTABLISHING OF SCHOOLS.

§ 59. The obligation to establish schools shall be regulated by the provincial legislature, on the principle that a school, under any circumstances, must be established in every locality where, in a circuit of one hour's walk, on an average of five years, more than forty children can be found who have now to attend a school more distant than one hour's walk.

§ 60. For children in factories and other manufacturing establishments who may be prevented from attending the common school, the proprietors of such factories, &c., shall establish, either by themselves or in connection with other manufacturers, separate schools of the same grade as the public schools.

§ 61. Where and by what means burgher schools shall be established will be determined by the legislature of the province.

VII.—DEFRAYING OF EXPENSES.

§ 62. The common schools needed are provided for by the school communities, which must regard the legal obligations of private persons and corporations.

How far the districts shall participate in supporting them will be decided by the legislature of the province.

§ 63. Every school shall have such school rooms as the instruction and health of the pupils require.

Special laws of the respective provinces will regulate the building and maintenance of the school-house, as well as the lodgings needed for the teacher.

Every school shall have a gymnastic ground, and in villages, as far as possible, a garden for the teacher, and facilities for agricultural experiments. The expenses of the same shall be provided for by the legislature of the province.

§ 64. It is left to the legislatures to establish provincial or district school funds for such expenses of the common schools as are not met by special resources. In this connection, the respective legislatures will decide whether the paying of school money and the rights of presenting teachers (§ 50, al. 2) shall be continued or not.

§ 65. Parents who have their children instructed at home or in a private school are exempt from paying tuition fees, but not from other legal contributions for the common school.

§ 66. So far as the means of the school community in each district respectively will not suffice to cover the expenses of the school, the province shall pay.

The "*normalschul fond*," with their actual capital, and with all private obligations, shall be devoted exclusively to the purposes of common schools. The civil authority of the province (*Landes-ausschuss*) will be charged with the administration, and the school board of the province with disposing of the income, on the basis of a preliminary settlement by the legislature.

Those provinces which have hitherto received from the state assistance to their school fund shall receive the same, to the average amount granted 1866—1868, from general state funds to the respective "*normalschul fond*."

In estimating that amount, all sums must be deducted which were paid formerly for purposes henceforth to be provided for immediately by the state. (§§ 53 and 67.)

§ 67. The expenses for teachers' seminaries and their schools of practice, and the "*stipends*" mentioned in § 37, as well as the higher courses for teachers, (§ 42,) will be paid by the state.

When the school of practice is at the same time a common school, the state, on sharing the nomination of teachers, will contribute to supporting the same, but the amount in each case shall be settled by special agreement.

The courses for the improvement of teachers (§ 47) will be at the expense of the state.

B.—PRIVATE INSTITUTIONS.

§ 68. Private seminaries for male or female teachers cannot be established but on the following conditions:

1. Statutes and plans of instruction, as well as any change of the same, must be sanctioned by the Minister of Education.

2. Only such persons shall be principals or teachers as are fully qualified to instruct teacher pupils. For this purpose, at least a certificate is required that the teacher is entitled to teach in burgher schools, and has taught in public schools at least for three years. Exceptions can be allowed only by the Minister of Education, if the qualification be proved otherwise. On the same conditions, such seminaries in which the pupils have board and lodgings may be established.

§ 69. Private seminaries may receive from the Minister of Education the right of giving valid certificates, (like the public ones,) on the further condition that the organization does not essentially differ from that in public seminaries, that the principals and teachers are sanctioned by the provincial school board, and that the final examination has been held in presence of a deputy from that board, without whose consent a certificate of maturity cannot be given.

§ 70. Private schools for children of school age, and private institutions in which such children have board and lodging, may be established on the following conditions:

1. Principals and teachers must procure evidence of those qualifications which are required from teachers of public schools of the same grade. Exceptions may be allowed by the Minister of Education, if the requisite qualification be otherwise shown.

2. Their moral conduct must be unobjectionable.

3. The plan of instruction must answer at least the claims made upon a public school of the same grade.

4. The whole arrangement must be such that no injury to the children's health may be feared.

5. Any change of teachers, of the plan of lessons, and of the school-rooms, must be made known to the school boards before being attempted.

For opening such schools the consent of the provincial school board is needed, which cannot be denied whenever the conditions 1—4 are fulfilled.

§ 71. The private schools are subject to the supervision of the state. Their principals are responsible to the school authorities for the orderly and regular state of the schools.

§ 72. Private schools may get from the Minister of Education the right of giving certificates, valid throughout the state, if their organization and the aim be equal to those of public schools of the same grade.

If such a private school satisfies the educational wants in a community, the latter may be released from the obligation to found a new school.

Such private schools lose this said right when they answer no longer the demands for a public school.

§ 73. Private schools where the law is not observed, or where moral deficiencies become evident, shall be closed by the provincial school board.

FINAL DIRECTIONS.

§ 74. The determinations of competence [of boards, &c.] contained in this law shall be applied but where the same have not been fixed already by the legislature of the province. The regulation of June 25, 1867, concerning a provincial school council for the kingdom of Galicia and the Grand Duchy of Krakow is not altered by this law.

§ 75. In regard to the particular circumstances in Dalmatia, Galicia, Krakow, Krain, Bukowina, Istria, and Görz, it shall be left to their legislatures to admit a departure from the principles set down in §§ 21, 22, 28, and 38.

§ 76. The present law, so far as new provincial laws will be needed, shall be brought into operation at the same time with those laws, but in all other respects with the beginning of the new school year following the publication of this law.

§ 77. Beginning from that time, all other laws and ordinances, so far as they are at variance with this law or replaced by it, shall be null and void.

§ 78. The Minister of Education is charged with carrying out this law, and with issuing all requisite ordinances and instructions.

II.

LAW RESPECTING THE INSPECTION OF SCHOOLS, AND THE CHURCH.

[Promulgated May 26, 1868.]

§ 1. The supreme inspection of all instruction and education belongs to the state, and is executed by boards and officers appointed according to law.

§ 2. Without detriment to this right of inspection, the conducting and immediate inspection of religious instruction and religious exercises in the primary and secondary schools (*volks- und mittelschulen*) remain with the respective church or denomination.

§ 3. All schools and educational institutions, founded or supported wholly or entirely by the state, by a province, or by municipalities, are accessible to all citizens of the state, without regard to creed.

§ 4. All denominations are at liberty to found, and to support at their own expense, schools for the instruction of youth of their respective creeds. They are, however, subject to the school laws, and cannot be acknowledged as public schools unless they comply with all the legal conditions of such schools.

§ 5. The schools and educational establishments for any one denomination may be attended by members of any other denomination.

§ 6. All citizens of the state who possess the legal qualifications may be teachers in the schools defined in § 3.

Teachers of religion must have been declared qualified by their respective clerical board.

In other schools (§ 4) this point is decided by the statutes of foundation. The choice of private teachers is not limited by any regard to the religious creed.

§ 7. The text-books used in primary and secondary schools, as well as in teachers' seminaries, require only the consent of the boards called into existence by this law.

Text-books for religious instruction cannot receive that consent unless they have been declared admissible by the respective clerical board.

§ 8. The revenues of the "*normalschulfonds*," of the "*studienfond*," and of all other funds for educational purposes, shall be applied without regard to denominations, so far as they are not proved to be founded for the adherents of a particular creed.

§ 9. The state exercises the supreme administration and inspection of all education through the Minister of Education.

§ 10. For the administration and inspection of all educational affairs, other than of the common schools and teachers' seminaries, in each province shall be established—

a—a provincial school board, (council,) as the highest school board of the respective province, (*landes-schulrath*);

b—a district school board for each school district, (*bezirks-schulrath*);*

c—a local school committee for each school community, (*orts-schulrath*.)

The division into school districts is made by the provincial legislature.

§ 11. The functions of the previous clerical and secular school boards is hereby transferred to the boards mentioned in § 10, except what is determined in § 2.

§ 12. The provincial school board shall consist of the Governor or Vice-Governor, as chairman, of members of the provincial government, of deputies of the civil authority of the province, (*landes-ausschuss*), of clergymen selected from the different denominations in the province, and of professional educators.

* In the school law of 1869 generally the word "*bezirks-schulaufsicht*" is used, which the translator thought best to render by "district school superintendent," taking "*inspector*" for "*inspection*," as "*Minister*" for "*Ministerium*."

§ 13. The legislature of the province shall fix the particulars concerning the composition and organization of the provincial, district, and local school councils; then the limits of their operation; finally, the particulars regarding the transition from the previous school boards to the present school councils. A provincial law will determine whether and how far deputies from important school communities may exceptionally enter the provincial school board.

§ 14. Sections 1, 2, 3, 4, 5, 6, 8, and 9 come into operation the same day on which this law is published, and all former laws and ordinances at variance with these provisions shall be abolished henceforth. The regulation of June 25, 1867, sanctioned by the Emperor, concerning a provincial school council in Galicia and Krakow, is not altered by this law.

§ 15. My Minister of Education is charged with bringing this law into operation.

FRANZ JOSEPH.

HAGEN.

COMMON-SCHOOL LAW OF SAXE-GOTHA.

Ordained July 1, 1853.

WE, ERNEST, *Duke of Saxe-Coburg Gotha*, have decreed and ordained, with the consent of the Legislature of the Duchy of Gotha, as follows: *

I.—DUTIES, OBLIGATIONS AND RIGHTS OF INHABITANTS GENERALLY.

SECTION 1. The obligation of parents, tutors, and foster-parents not to leave their children or pupils without the education prescribed for the common schools, extends not only to the children of citizens of the State, but to such children belonging to other States as have their residence in the Duchy.

§ 2. Instruction in the common schools shall embrace at least the following branches: Religion, German language, with reading and writing, arithmetic, geography, history, the elements of natural history and philosophy, singing, drawing, and gymnastics.

Religion is taught on the basis of Sacred History, especially of the New Testament. When religious instruction begins for the "confirmation," it ceases in the common schools.

§ 3. The common schools shall educate the children to a consciously moral life, and develop equally their intellectual powers.

Nothing shall be taught surpassing the capacity of children; nothing be learned by rote that cannot be thoroughly understood.

Discipline shall be maintained only by such means as are consistent with the aims of public education, and correspond to the character of paternal education.

§ 4. Obligatory school attendance embraces, as a rule, *eight* school-years. See §§ 17, 18, 19.

§ 5. Parents may have their children either instructed in the common schools, or, as prescribed in §§ 2 and 4, by private teachers, or by themselves. (See § 26, al. 2, and § 27.)

Attendance in higher schools releases from the obligation mentioned before.

II.—DUTIES AND RIGHTS OF THE COMMUNITY.

§ 6. Every political community constitutes a school community. Several villages may be united for school purposes if the distance from the school-house does not exceed one-fourth of a German (one English) mile, and if the road be not temporarily impassable. If so, any village, with less than 30 children, may avail itself of a neighboring school, if either the expenses of that community will not be heightened by it, or the applying village will share the expense. The same may be done, on the motion of the Minister of State, if the State pays the additional expense, which payment shall not impair the right of the community to choose their own teacher. (§ 37.)

§ 7. Every school community must have one common school, and, if necessary, more than one. (§ 8.)

§ 8. The regular number of children is 80. Should the average number for five years exceed 80, the number of masters, as well as school-rooms, shall be increased.

§ 9. Each school must have a school-house exclusively devoted to its purposes. All school-rooms shall, in structure and furniture, answer the purposes of education and of health.

§ 10. Exemption from the provisions of §§ 7, 8, 9, al. 1, may be made by government, but to § 8 only in case the number of children does not exceed 100.

* This law does not apply to the Duchy of Coburg, which has, for the present, a separate administration of its schools.

§ 11. In each school the needed implements for instruction must be provided, and especial care should be taken to procure a library for teacher and pupils.

§ 12. The expenses for establishing, maintaining, and enlarging schools, for the salaries and pensions of teachers, for the grants to their widows and orphans, and for fuel, so far as they have not been defrayed hitherto entirely or partly from other funds, must be paid in every school community by such foundations or endowments for school purposes as may exist; next by the special income, (§ 14.) and so far as this does not suffice, by taxes or other means of the community. Foundations for school purposes cannot be applied to other uses.

§ 13. In a school community, composed of several villages, each portion must contribute to the expense according to the number of inhabitants, with this proviso, that the village in which the school is situated must pay one-third more than the other villages.

§ 14. Special revenues for supporting the schools are, 1, the school money, (§ 15;) 2 any fines paid for school purposes. (§§ 23, 24, 26, 28, 29.)

§ 15. The amount of school money to be paid by each child is fixed by the respective community; provided, that in no case shall more than one-half of the regular expense of the school be borne by tuition, the balance being borne by a tax on the property.

On no account shall the annual pay of a child, in the three cities of Gotha, Ohrdruf, and Waltershausen, exceed 4 thalers; 6 thalers for two, or 8 for three children of the same family; and in all other places, half of that sum.

§ 16. Such communities as shall be found unable to raise the needed amount may receive grants from the State.

III.—DUTIES AND RIGHTS OF PARENTS.

§ 17. Parents and their substitutes are obliged, unless bodily or mental infirmity admits exception, to send their children to school from the beginning of that school year when they have completed their sixth year of age. Children may be admitted, with the consent of the school committee, if they are to complete their sixth year before the first of October.

§ 18. Admission takes place once a year, at the beginning of the school year, in the first week after *Easter*, and at no other period of the year, except when prevented by sickness, or by change of residence. In the latter case, the child must produce a testimonial of attendance, application, progress, and good behavior, from his former teacher, which testimonial or application must be given by the latter gratuitously.

§ 19. The children leave school at the end of that school year when they have completed their fourteenth year, or are to complete it before the first of October. Should a child, at that time, not be able to read and write fluently, and to solve single arithmetical problems of common use, the parents are obliged to leave the child at school until at least this knowledge be attained, if no mental or bodily infirmity make that attainment improbable.

Parents of such children as could and should leave school, (completion of the fourteenth year,) may send them to school, with the consent of the school committee, for one year more.

§ 20. Parents, so far as it does not interfere with other laws, must decide in which religious confession their children shall be instructed. If the teacher is not of that creed, they have the right to excuse their children from attending his religious instruction, but they are obliged to have their children instructed in religion elsewhere.

§ 21. Children, as a rule, must attend school where they reside. But parents may send their children to a neighboring school, with the consent of the committee of this school, and in so doing they are released from paying the school money for the child, but not school taxes.

§ 22. For any absence from school, not sufficiently excused, the parents of the child may be fined. (§ 23.)

§ 23. For observing all that is ordained in §§ 17, 19, 20, 21, 22, the parents are responsible, and they may be punished by the school committee with a fine of as



much as five thalers, (or, in case of insolvency, with a corresponding imprisonment.)

In case of persistent neglect on the part of parents, children so neglected may be taken by the district school board, (§ 89,) and committed to the care of others at the expense of such parents.

§ 24. If parents feel aggrieved by a teacher, with the reservation of proceeding at law, if the case permits, they must apply to the school committee for satisfaction, and, if not satisfied with the result, to the district school board; but nobody is authorized to enter the school-room, or to call the teacher personally to account. Any violations of this provision, so far as they are not to be decided before the judge, are, on communication by the committee, to be fined by the district school board with not more than 10 thalers; if necessary, the police officers of the district may be called upon to enforce the decision of the board.

§ 25. If a child, for undisciplinatory or penal reasons, is excluded from school for a long time, the parents, or in case of their inability, the community or the State, must provide private instruction.

§ 26. Parents who do not send their children to the common school are exempted from payment of the school money, but must make all other contributions. If they have their children instructed privately, (§ 5,) they are responsible to the State that this instruction will be at least equal to that given in the public school. Should there be doubts about it the superintendent of schools in the district (§ 85) is obliged to ascertain whether the doubts be justified or not. The parents must submit to these measures, or they may be fined five thalers by the school committee on information by the superintendent.

§ 27. In case of continued resistance, or of insufficient instruction, the district school board may deprive them of the right of *private instruction*, and proceed as in § 23.

§ 28. The provision of §§ 26 and 27 apply to instruction in religion.

IV.—TRAINING OF TEACHERS.

§ 29. The State will provide for the education of teachers by means of a Normal School. (Teachers' Seminary at Gotha.)*

§ 30. No candidate can be admitted to the Seminary before the completion of the 16th year of age.

§ 31. None are admitted except such as have at least the qualification for entering the second class of the gymnasium, (in Gotha,) or the highest class of the progymnasium in Ohrdruf, or an equivalent examination.

§ 32. To the course of instruction in the gymnasium (excluding all languages besides German) are added in the Normal School:

- (a) Pedagogy and its history.
- (b) Anthropology and psychology.
- (c) History of literature.
- (d) Music.

§ 33. The studies of the gymnasium are, in part, more thoroughly mastered, particularly mathematics and the natural sciences, and, in part, are reviewed with special regard to their use in common schools.

Religion is taught chiefly on its historical grounds, and especially Christianity, as developed in connection with the Old and New Testament.

§ 34. The number of pupils is not limited, except by the demand for teachers. Instruction to inhabitants of the State is gratuitous.

§ 35. All graduates of the Normal School, with a certificate of maturity, as well as those who may prove in some other way their moral, literary, and professional qualification, are furnished with a certificate or diploma of matriculation, which enables the holder to accept an employment as teacher.

§ 36. Any candidate is obliged, for the two years following his matriculation, to serve for a shorter or longer time as assistant teacher or substitute. Candidates intending to go abroad for some time, are bound to give notice of it to the

* It had, in 1867, 62 pupils, in 3 classes, with 5 principal teachers and 4 assistants, (the principal was at that time *Ditte*, now in Vienna,) at an expense of 4,813 thalers. The little Duchy of Coburg, with 50,000 inhabitants, has also a Teachers' Seminary at Coburg.

Minister of State, and to name the place of their future residence. Such candidates as act to the contrary shall forfeit their diploma of matriculation.

V.—ON THE APPOINTMENT OF TEACHERS.

§ 37. Each community, supporting its school by its own resources, or by local funds, or with aid from the State, as pointed out in § 6, but without having received such grants in the last five years as stated in § 16, has the right to elect its teacher, unless there be a "patron" of the school. (§ 38.) This is done by the magistrate, and by the school committee, (*gemeinde-ausschuss* or *stadterordneten*), with the mayor or burgomaster in the chair.

In united school communities, that village has the right of election within whose limits the school is located. Every choice needs the ratification of the government.

§ 38. The former school patrons keep their right of electing the teacher. To those communities which have not themselves the patronage, the teacher chosen by the patron shall be introduced by trial-lessons, (*on probation*), and if they are satisfactory to the municipality, he will be sanctioned by government.

§ 39. In those communities which have received grants from the State in the last five years, (§ 16,) government has the right of electing the teacher, with the reservation of the patron's right. The government has the same right, if the communities or school patrons have not made use of their right within four months after the place has become vacant. In case of appointment by government, the teacher is not confirmed, until after trial.

§ 40. The first appointment is, as a rule, a provisory one; but this provisory state shall not extend beyond two years.

§ 41. The education of little children, in the first three school years, may be committed to a *female* teacher, with the consent of the highest board and of the school community, if the latter has the right of choosing the teacher, after an examination of her qualifications. Her rights and duties are defined in a contract made with her by the school committee. This contract needs the sanction of the Minister of State.

VI.—DUTIES AND RIGHTS OF COMMON-SCHOOL TEACHERS.

§ 42. Every teacher, on being appointed, must receive a certificate of his claim to a salary. The *minimum* of the salary must be, annually—

A.—For provisory and assistant teachers.

150 thalers, with free lodging, or equivalent in money, to all substitutes and assistant teachers. (§ 36.)

155 thalers, with free lodgings, etc., to all provisory teachers. (§ 40.)

B.—For such teachers as are definitively appointed.

a.—In village schools, with 50 or less children—

200 thalers, and free lodgings, until the end of the 5th year.

230 " " " " 10th "

260 " " " " 15th "

290 " " " from the beginning of the 16th year.

b.—In village schools, with more than 50 children, (including the towns of Friedrichroda and Zella)—

200 thalers, and free lodgings, until the end of the 5th year.

240 " " " " 10th "

280 " " " " 15th "

320 " " " from the 16th year of service.

c.—In the common schools of the three cities of Gotha, Ohrdruf, and Waltershausen—

250 thalers, until the end of the 5th year.

300 " " " 10th "

350 " " " 15th "

400 " " from the 16th year of service.

The free lodgings, as well as what they may receive according to § 44, shall be estimated in money.

In fixing the salary, the fees for services as cantor, or organist, or sexton, (§ 47,) shall be included. This shall not be the case with such fees as they may receive for keeping the accounts of the church and of the community.

§ 43. Concerning provision § 42, *B, a* and *c*, the average number of children in the last five years is taken. But, in consequence of this average account, the salary can only be raised, but never lowered.

In counting the time of services, the time of provisory employment, as well as the services of assistant and substitute teachers after the end of the second year from matriculation, (§ 36,) and, if any be called from other States, the time of services in those States, must be included.

§ 44. Each definitively appointed village teacher shall have, besides free lodgings, a part of his salary given in natural products, or in the usufruct of fields and meadows. Particularly, if possible, should be assigned to him a garden, meadow grounds for keeping a cow, and a field for growing potatoes sufficient for a household. The salary is to be paid monthly in advance. The same applies to the money paid in case of suspension, (§ 62,) and to the pension. (§ 59.)

§ 45. The estimate of the salary is to be made by the district school board, (§ 89,) with the help of the municipality and of government, but it is not valid until it is acknowledged by the community, or by the school patrons respectively.

§ 46. The same board must decide on pecuniary matters between the teacher leaving his position and the one who enters.

§ 47. The teachers are obliged, also, henceforth to take charge of the offices of cantor, organist, and sexton, where it has been the case until now.

They are permitted to give *private* lessons, and to keep the accounts of church and community, if their schools are not losing by it. Any other side-work needs the permission of the government.

§ 48. Definitive appointment gives the teacher—

(a) Claim to a pension. (§ 59.)

(b) The right of admission to the Society for Widows.

(c) The right and obligation to partake in all charitable institutions for the benefit of teachers, and their widows and orphans. Each widow of a teacher has the allowance of the income for the three months following the death of her husband.

§ 49. Any elementary teacher is obliged, if required, to give 30 lessons of an hour each a week, not including gymnastics.

No teacher is permitted to dispense with any lessons without the consent of the school committee, (§ 78,) or of the chairman. (§ 80.)

In sudden cases of hindrance, the school committee must receive notice as soon after as possible.

§ 50. No elementary teacher is allowed to marry in the country, unless he has an income of 200 thalers, besides free lodgings; or, in the three cities, of 300 thalers. Permission is given by the government.

§ 51. Common-school teachers who may be charged with neglect of their duty, maltreatment of children, disobedience to their superiors, offensive behavior, or inconsiderate contracting of debts, shall be *admonished* by the school committee, or by the superintendent. If this measure be applied twice without effect, the procedure of correction shall be applied. (§ 52.)

§ 52. The procedure of correction against the teacher consists in—

(a) An oral admonition before the district board.

(b) An oral admonition before the supreme board, joined with the menace of his dismission in case of continuance, as the last trial of correction.

If, after an admonition or procedure of correction, the teacher has not been found guilty in the following three years in any of the above-mentioned respects, the former or the latter shall no more come to account.

§ 53. The highest board (§ 91) may remove any teacher to another place, if it seem desirable from disciplinary reasons, but cannot lessen his income.

§ 54. The expenses caused to a teacher by his change of residence must be borne by that community where the teacher enters.

§ 55. If a teacher, by his age or a disease, though not quite unable to do his

duty, is so far an invalid that he cannot any longer perform all his duties, without detriment to the school, the highest board may give him an *assistant* for the time of his infirmity.

§ 56. Towards paying the assistant provided for temporary infirmities, the teacher has, if needed, to give up the fourth part of his salary. But if, after this deduction, there should not remain the full amount of the pension which he would have to claim in case of entire disability, (§ 59,) he has only the surplus over that amount to contribute to the salary of his assistant.

§ 57. If a teacher himself wishes to give up his position, he is obliged to give proper notice, three months in advance, to the school committee, of his resignation.

§ 58. Superannuation of a teacher takes place on his application when he has completed the 40th year of service and the 65th year of age; or also, without his application, by the government, if the teacher, by manifest mental or bodily infirmity, (not caused by his guilt,) is prevented from performing his duty in a satisfactory way.

§ 59. The superannuated teacher may claim, for the remainder of his life, a pension in proportion to his last salary. Natural products, etc., are counted by their value in money. The *pension* consists, for ten or less years of service, of 40 per cent. of the salary; for any further year, though but commenced, it is raised at the rate of $1\frac{1}{2}$ per cent. of the salary until it reaches its full amount.

The time of service is counted as stated in § 43. (Comp. § 69.)

As long as a superannuated teacher may have another public function, with a fixed income, and if this, together with the pension, should exceed 300 thalers, half of the surplus will be deducted from his pension.

A pensioned teacher is permitted to reside in any other State without any diminution of his pension.

§ 60. If a teacher, pensioned before the said 40th year of service, and 65th year of age, recovers his ability to serve, he may be reappointed, and may receive his former salary, if needed, with a part of his pension. For increasing his salary, according to § 42, that time in which he lived on his pension shall not be counted.

§ 61. If a pensioned teacher commits such crimes as would have caused his dismission, (§ 62,) he loses his claims to the further enjoyment of his pension.

§ 62. With regard to suspension and dismission, the teacher is treated according to the law for civil officers of May 3, 1852. To the cases mentioned in § 46 of that law, however, one is added here, if a teacher should offend by unchaste actions, though they would not be punishable before the justice.

VII.—INSPECTION OF COMMON SCHOOLS.

§ 63. School-inspection is exercised by the following boards:

A.—Local School Committees.

§ 64. The school committee represents legally the local interests of the school, and has the supervision of them in the ways fixed by this law.

§ 65. *a*—In any village which forms, by itself, a school community, (including the towns of Friedrupsoda and Zella,) the committee consists of the mayor, of the highest clergyman, if there be several, of the teacher or teachers, and of as many *school wardens* as there are teachers in the committee. (§ 69.)

If there are more than two teachers in one village, only the two oldest who are in active service shall be members of the committee. The school wardens are chosen by the delegates of the village for 3 years.

§ 66. *b*—In a school community consisting of several villages, each village is to be represented in the committee by the mayor and one school warden, together with the clergyman and the two oldest teachers.

§ 67. *c*—In the cities of Gotha, Ohrdruf and Walterhausen the school committee consists of the "senator" or town counselor, who is charged with the school affairs; of two school wardens, chosen by the delegates for 3 years; of the highest clergyman of the town; of the principal of the larger school, and of one teacher, who is to be chosen out of all definitely appointed teachers of the town for 3 years. If there be several principals of town schools, the delegates of the town (*Stadterordneten*) must choose one of them for 3 years.

§ 68. If there is a "patron" of the school, he is also a member of the committee. He may choose another person living in the village to take his place. But if he has not made use of this privilege, he is regarded as having resigned, and as having lost his membership for the time of his absence from the village.

§ 69. The office of *school warden* is an honorary one, and the same law applies to one declining or resigning it as to a delegate of the community who should decline his office.

§ 70. The members of the committee choose their chairman for 3 years with a relative majority. Principals and teachers cannot be chairmen.

§ 71. The committee shall take care that a suitable school-house or houses, according to this law, be afforded by the community. They are to see that the school-rooms are kept in a proper state, and that there is the needed and timely supply of all means and implements of instruction.

§ 72. The committee must, in the last quarter of the year, make the estimate of expenses of the school for the next year. This estimate, with any necessary motions and explanations, shall be placarded for every one's inspection at least during eight days, and any one has the right to present his objections to the committee. After that time, the estimate, with such objections as may have been made, is handed over to the delegation of the community, and then for supervision to the government; (in the country, to the district board; in the three cities, to the highest board.) The government decides on any controversy that may have arisen between the school committee and the delegation of the community, and the question being settled, the estimate is to be considered as fixed, and is delivered to the committee for their action. If any changes should be necessary, the committee must get the consent of the delegation.

§ 73. The money is kept by a cashier, who gives security, with the supervision of a commissioned member of the committee. Orders issued concerning school taxes must be signed by the chairman. The member of the committee, and a commissioned member of the delegation, must, at least once a month, examine the book kept by the cashier to verify the accounts.

§ 74. The annual accounts for the year must be laid before the school committee before the 1st of May of the next year. The committee examines them, and has them placarded, in case of a difference from the estimate, for at least eight days, and then sends them, with the final objections, to the delegates, by whom a particular committee or an expert comptroller may be chosen to revise them. The government, however, may at any time have this done by an expert of its own appointment. The mayor has no vote in this matter.

If the school committee or the cashier do not acquiesce in the action of the delegation, they may appeal to the government, and in case of proceeding at law, this shall not delay the final settlement of the accounts. They are signed in the three cities by the chairman of the delegation; in villages, by all the members present, with exception of the mayor; and, where there is no delegation, by four commissioned members of the community. After this, a copy of the accounts is sent at once to the highest board.

§ 75. The committee must see that the children of the community receive such instruction as is prescribed by this law, (§§ 17, 19, 26,) and that they attend school regularly. They decide whether a child may be exempted from attending the common school, (§ 17,) or shall be excluded for the purpose of discipline, (§ 25,) and if a child, not belonging to the community, shall be admitted. (§ 21, al. 2.) In the last request there is no appeal against their decision.

The committee must be present at the public examinations, and other solemnities of the school, and in doubtful cases (§ 19, al. 2) must decide on the final discharge of a child from school.

§ 76. The committee also decide on petitions for a partial or entire release of the school money.

§ 77. They also settle any controversy between teachers themselves, or between teachers and the parents of children, (§ 24,) and take care that, in presence of the children, neither the authority of the teachers be lowered by the parents, nor that of the parents by the teachers.

§ 78. The committee must watch over the faithful performance of their duties by the teachers, so far as this is not submitted to the especial cognizance of the

Superintendents. (§ 85.) Commissioned members communicate their observations to the committee, who may then, if needed, proceed with admonitions. (§ 51.)

Leave of absence, if it shall not exceed three days, may be given to the teacher by the committee. (See § 80.)

§ 79. In the performance of their duty, the committee may issue summons, menacing, in the case of disobedience, with a fine of five thalers, (or corresponding imprisonment.) In order to execute this, or other fines, (§§ 23, 26,) the committee may, if necessary, require the help of the police.

§ 80. The chairman of the committee must inform the government of such resolutions as, according to his opinion, are contrary to the interests of the school, or to law. He alone may grant the teacher a leave of absence for *one* day.

§ 81. The committee assemble on invitation by the chairman. Any member has the right to demand from the chairman a meeting of the committee, who shall then be convoked within three days. If desired by the Superintendent, (§ 85,) the chairman is obliged to call them without delay.

§ 82. Members of the committee are excluded from debating and voting on matters in which they are personally interested.

§ 83. When all the members of the committee have been notified, a resolution is lawful if adopted by three members, and a vote is carried by a majority. When there is a tie, the chairman gives the casting vote.

Of all resolutions, a verbal process must be drawn up, and, at demand, be shown to the Superintendent of the district.

§ 84. Against the resolutions of the committee, so far as they are not decisive, according to the preceding paragraphs, no appeal to the district board may take place.

B.—Government Boards and Officers.

§ 85. The inspection of common-schools by the State; concerning instruction (*unterricht*) and education, (*erziehung*.) is by school *superintendents*, appointed by the government, and taken from experienced school-men.* For this purpose the country is divided into *eight* districts.

§ 86. The Superintendents must see that instruction in the common-schools is properly attended, and that private instruction satisfies the legal demands. Also, that the deportment of the elementary teachers is correct; and for actions contrary to their duties, they are to admonish them. Principals and teachers must obey their orders, without detriment to their right of making complaints to the highest board. (§ 91.)

Any deficiencies of the school-rooms, in number or quality, and of the implements for instruction, as well as such circumstances as would, according to their opinion, make it desirable to suspend, pension, remove, or dismiss a teacher, or to give him an assistant, must be made known by them to the proper board.

§ 87. The Superintendents must, by regular *conferences*, aim to animate the teachers in regard to an equal development of education. In this behalf they may, if they find it best, subdivide their districts into suitable sub-districts, where the teachers shall, at least once a month, assemble for discussing general educational questions, if possible, in presence of the (presiding) Superintendent.

§ 88. The Superintendents themselves shall be called together to a conference by the highest board, at least once a year. Under the presidency of the professional counselor of the Minister of State, who is charged with the administration of schools, (§ 91,) they may discuss any change of the plans of lessons, the introduction of new text-books, and other measures for the improvement of schools, and submit their resolutions to the consideration of the Minister of State. To those conferences of the Superintendents also the principals of city schools, or other qualified teachers, may be invited.

§ 89. The inspection of schools by government, so far as it is not assigned to the Superintendents, is exercised through the *district school boards*, (*schulamt*.)

* An especial regulation for them, of September 11, 1863, shows their importance in the new school system. They are, says the first article, the organs of the State, and shall assure in the schools the development of a sound pedagogy.

which shall be henceforth an independent department for schools within the former "church and school boards," (§ 90.) and shall be composed—

(a) In the districts of the three cities, of the burgomaster as president, and of the local Superintendent.

(b) In the rural districts of the same towns, of the rural counselor of administration (*landrath*) as president, and of the local Superintendent.

(c) In the judicial districts of Volkenroda and Nazza, of the justiciary as president, and of the local Superintendent.

§ 90. The competence of the "church and school boards," concerning the administration of schools, remains unaltered, so far as this law does not ordain to the contrary.

§ 91. The supreme authority in all educational affairs rests with the Minister of State, according to the law of June 11, 1858.

The general inspection of education (§ 92-4) is committed to a practised school man, who, in all educational affairs, is the professional counselor of the Minister.

§ 92. To the especial department of the supreme school board belong—

1. The inspection of the normal school. (Teachers' seminary)

2. The examination of the candidates.

3. The ratification of the appointment, removal, pensioning, dismissal of teachers, and the employment of assistants.

4. The general inspection of the common-schools concerning instruction and education.

5. The control of the school funds, and of their administration, as well as of the salaries of teachers.

6. The opening of new schools, the uniting or separating of villages concerning the school community, the direction for building or enlarging school houses.

7. The organization of new classes.

8. The decision on the plans of instruction, and on the text-books.

9. The final decision on appeals against the orders of inferior boards.

VIII.—PROVISIONAL MEASURES.

§ 93. The increasing of classes and schools (§ 8) takes place according to the number of candidates, those schools being cared for most whose wants are the greatest.

§ 94. Revision of the conditions for admission into the normal school (§ 31) may be dispensed with for the next four years.

§ 95. The §§ 37 and 39 shall be applied only to the time of fixing the teacher's salary according to this law, though five years may not have passed since that time.

§ 96. The increase of the salaries, if they do not reach the minimum, (§ 42,) must commence with the first of January, 1865; and in case of a vacancy before that time, it shall take place at once.

§ 97. Beginning with that same time, all contributions to the salary by different persons shall be collected by the cashier, who has to pay the teacher at suitable times in advance. (§ 44.)

§ 98. Any gratuities hitherto given from the general school fund cease, as they are compensated by the salaries to be paid henceforth.

§ 99. The fees for making and keeping the school register, and for assisting in the school visitations, cease with the next increase of the salary.

§ 100. Ordinances for bringing this law into operation will be issued by the Minister.

[L. S.]

ERNEST, Duke of S. C. and G.,

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PESTALOZZI AND HIS EDUCATIONAL SYSTEM.

PESTALOZZI AND PESTALOZZIANISM:—Memoir, and Educational Principles, Methods, and Influence of John Henry Pestalozzi, and Biographical Sketches of several of his Assistants and Disciples; together with Selections from his Publications. In Two Parts. By HENRY BARNARD, LL.D. New York: E. STEIGER.

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